ORDER NO. HAD8604481C8

Service Manual

Dolby B • C NR-Equipped
Stereo Cassette Deck

Cassette Deck
RS-B305

RS-B305

DOLBY B•C NR*

Color

(K)...Black Type
(S)...Silver Type

Color	Areas
(K) (S)	[E].....Continental Europe.
(K) (S)	[EK].....United Kingdom.
(K) (S)	[EH].....Holland.
(K) (S)	[EGA]....F.R. Germany.
(K) (S)	[XA].....Asia, Latin America, Middle Near East and Africa.
(K) (S)	[XL].....Australia.

RS-B405 MECHANISM SERIES

SPECIFICATIONS

■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads	
REC/PLAY	Solid Permaloy head
Erasing	Double-gap ferrite head
Motors	Electronically controlled DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Tape speed	4.8 cm/sec.
Frequency response	
METAL	20 Hz~16 kHz
	30 Hz~15 kHz (DIN)
	40 Hz~15 kHz (±3 dB)
CrO_2	20 Hz~15 kHz
	30 Hz~15 kHz (DIN)
	40 Hz~14 kHz (±3 dB)
NORMAL	20 Hz~15 kHz
	30 Hz~15 kHz (DIN)
	40 Hz~14 kHz (±3 dB)
S/N	(signal level = max recording level, CrO_2 type tape)
Dolby C NR in	74 dB (CCIR)
Dolby B NR in	66 dB (CCIR)
NR out	56 dB (A weighted)
Wow and flutter	0.08% (WRMS)
	±0.2% (DIN)
Fast Forward and Rewind Time	Approx. 100 seconds with C-60 cassette tape
Input sensitivity and impedance	
MIC	0.25 mV/400 Ω~10 kΩ
LINE	60 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/2.7 kΩ
HEADPHONES	65 mV/8 Ω

■ GENERAL

Power consumption	13W
Power supply	
For continental Europe	AC 50 Hz/60 Hz, 220V
For United Kingdom and Australia	AC 50 Hz/60 Hz, 240V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 102 × 237 mm
Weight	3.3 kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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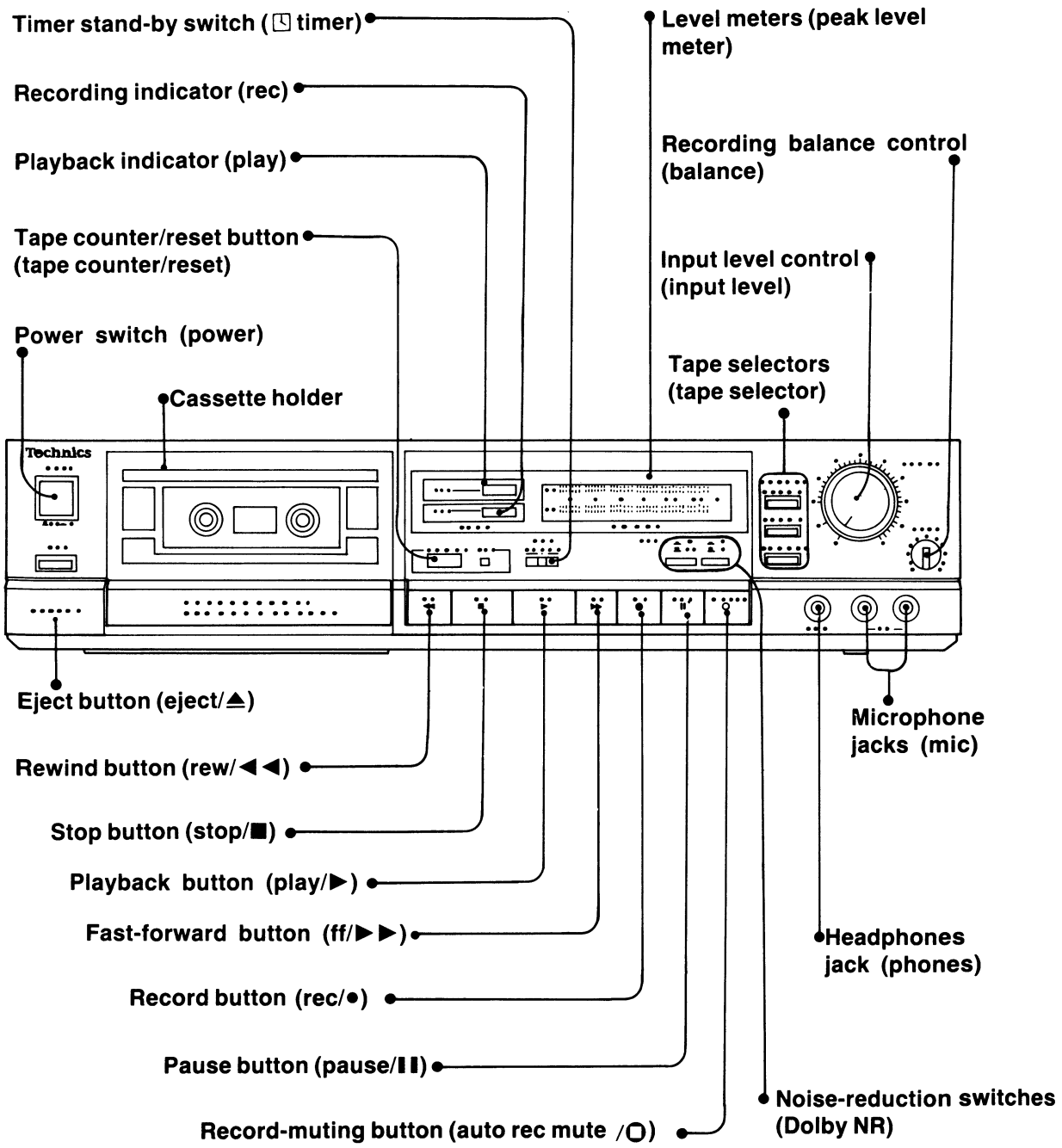
■ LOCATION OF CONTROLS



ORDER NO. HAD8604481C8-A

Dolby B·C NR-Equipped Stereo Cassette Deck RS-B305

DEUTSCH

DEUTSCH

■ MESSUNGEN UND EINSTELL METHODEN

Meßinstrumente

- Elektronisches Voltmeter (EVM)
- Oszilloskop
- Digitaler Frequenzmesser
- Audiofrequenz-Oszillator
- Dämpfungswiderstand
- Gleichstrom-Voltmeter
- Widerstand (600Ω)

Kopfazimut-Justierung

1. Die Anschlußverbindungen für die Testgeräte sind in Abb. 1 gezeigt.
2. Den Azimut-Justierungsteil (8kHz, −20dB) des Testbandes (QZZCFM) wiedergeben und die Winkeljustierungs-Einstellschraube so verstellen, daß der Ausgang vom linken und rechten Kanal maximal wird. (Wenn die Justierpositionen für den linken und rechten Kanal verschieden sind, ist eine Position zu finden, wo der Ausgang des linken und rechten Kanals ausgelichen ist, und dann ist die Justierung durchzuführen.)
3. Gleichzeitig eine Lissajous-Wellenform ziehen und Phasenablenkung eliminieren.
4. Nach erfolgter Justierung sind die Bandführungs-Höhen-und-Winkeljustierschrauben zu sichern.

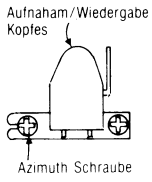


Abb. 2

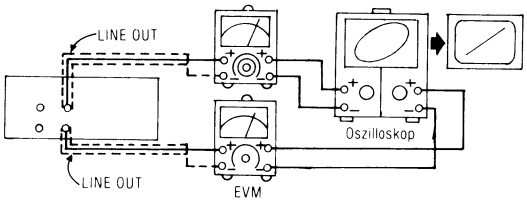


Abb. 1

Bandgeschwindigkeits-Justierung

1. Der Testaufbau ist in Abb. 3 gezeigt.
2. Den mittleren Teil des Testbandes (QZZCWAT) wiedergeben.
3. Den Drehwiderstand im Motor so justieren. daß die Ausgangsleistung dem Standard-Wert entspricht.

Standard-Wert: 3000±20Hz

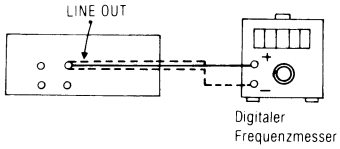


Abb. 3

Wiedergabe-Frequenzgang

1. Der Testaufbau ist in Abb. 4 gezeigt.
2. Den Wiedergabe-Frequenzgangteil (315Hz, 12,5kHz~63Hz, −20dB) des Testbandes (QZZCFM) wiedergeben.
3. Überprüfen, ob der Frequenzgang innerhalb des in Abb. 5 für den linken und rechten Kanal gezeigten Bereichs liegt.

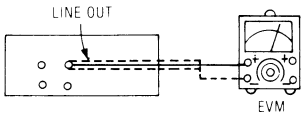


Abb. 4

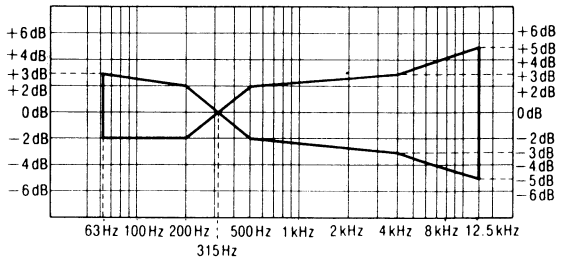


Abb. 5

Justierung des Wiedergabe-Verstärkungsgrades

1. Der Testaufbau ist in Abb. 4 gezeigt.
2. Den für den Wiedergabe-Verstärkungsgrad justierten Teil (315Hz, 0dB) des Testbandes (QZZCFM) wiedergeben.
3. Den Drehwiderstand 5, (linker Kanal) {Drehwiderstand 6 (rechter Kanal)} so justieren, daß die Ausgangsleistung dem Standard-Wert entspricht.

Standard-Wert: 0,4V±0,5dB (0,02V)

Löschstrom-Justierung

1. Der Testaufbau ist in Abb. 6 gezeigt.
2. Den Bandsorten-Wahlschalter in die "metal"-Position einstellen.
3. Eine Reineisenband-Cassette einsetzen.
4. Die Aufnahmetaste und die Pausentaste drücken.
5. Dabei ist zu überprüfen, ob die Ausgangsleistung zwischen Testpunkt 301 und Masse dem Standard-Wert entspricht.
6. Testpunkt 302 abtrennen, falls der Wert mehr als 240mA ist.

Standard-Wert: 210±30mA (Metal), (210±30mV)

$$\text{Löschstrom (A)} = \frac{\text{Spannung über Widerstand R309}}{1\,(\Omega)}$$

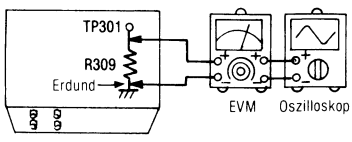


Abb. 6

Gesamtfrequenzgang

1. Der Testaufbau ist in Abb. 7 gezeigt.
2. Den Bandsorten-Wahlschalter in die "Normal"-Position einstellen.
3. Eine Normalband-Leercassette (QZZCRA) einsetzen und aufnehmen, während ein Signal von nacheinander 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz bei 20dB, abgeschwächt vom Referenz-Eingangspegelsignal (1kHz, −24dB) eingegeben wird.

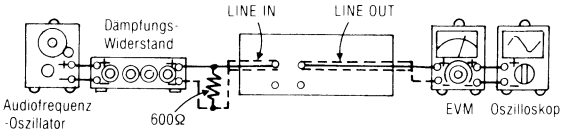


Abb. 7

4. Das in Schritt 3 aufgezeichnete Signal wiedergeben und prüfen, ob der Pegel jeder Ausgangsfrequenz im Bereich liegt, der in Abb. 8 im Vergleich zur Referenzfrequenz (1kHz) gezeigt wird.
5. Falls er nicht im Standard-Bereich liegt, ist der Vormagnetisierungs-strom mit Drehwiderstand 301 (linker Kanal) {Drehwiderstand 302 (rechter Kanal)} so zu justieren, daß der Frequenzpegel innerhalb des Standards zu liegen kommt.
   - Erhöhter Pegel im Frequenzbereich..... Den Vormagnetisierungsstrom erhöhen.
   - Reduzierter Pegel im Frequenzbereich..... Den Vormagnetisierungsstrom senken.
6. Anschließend das auf der CrO_2-Leerband-Cassette (QZZCRX) und der Reineisenband-Leercassette (QZZCRZ) aufgezeichnete Signal auf 14kHz erhöhen und auf gleiche Weise justieren, wie vorgehend beschrieben. Dann überprüfen, ob der Frequenzpegel innerhalb des in Abb. 9 gezeigten Bereichs liegt.

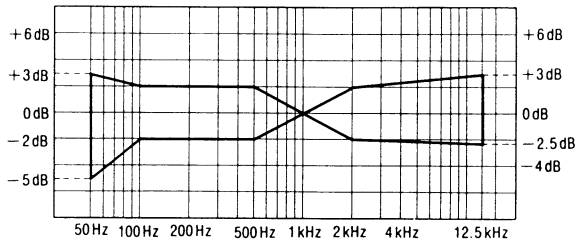


Abb. 8

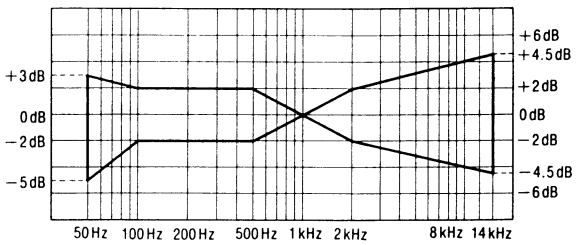


Abb. 9

Justierung des Gesamtverstärkungsgrades

1. Der Testaufbau ist in Abb. 7 gezeigt.
2. Den Bandsorten-Wahlschalter in die "Normal"-Position einstellen.
3. Eine Normalband-Leercassette (QZZCRA) einsetzen und im Aufnahmepause-Zustand des Gerätes das Referenzsignal (1kHz, −24dB) eingeben.
4. Die Ausgangsleistung mit dem Dämpfungswiderstand auf 0,42V justieren und dann aufnehmen.
5. Das in Schritt 3 aufgezeichnete Signal wiedergeben und überprüfen, ob die Ausgangsleistung dem Standard-Wert entspricht.
6. Falls sie nicht dem Standard-Wert entspricht, ist der Drehwiderstand 101 (linker Kanal) {Drehwiderstand 102 (rechter Kanal)} zu justieren, und dann sind die Schritte (2), (3) und (4) zu wiederholen, bis die Ausgangsleistung dem Standard-Wert entspricht.

Standard-Wert; 0,4V±0,05V

Dolby-Rauschunterdrückungs-Schaltkreis

1. Der Testaufbau ist in Abb 10 gezeigt.
2. Eine Normalband-Cassette einsetzen und im Aufnahmepause-Zustand des Gerätes ein 5kHz-Signal eingeben.
3. Mit dem Dämpfungswiderstand so justieren, daß die Ausgangsleistung zwischen Anschluß ⑦ des IC401 (linker kanal) {IC402 (rechter Kanal)} und Masse 12.3mV beträgt.

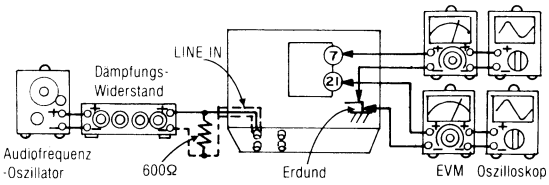


Abb. 10

— Dolby-B (Kodierungseigenschaft) —

4. Den Rauschunterdrückungs-Schaltkreis (NR) auf "Dolby B" einstellen und das Eingangssignal auf 1kHz, 5kHz verändern.
5. Überprüfen, ob die Ausgangsleistung zwischen Anschluß ㉑ des IC401 (linker Kanal) {IC402 (rechter Kanal)} und Masse wie vorgeschrieben gegenüber dem Pegel im rauschunterdrückungsfreiem Zustand verändert wird.

Standard-Wert: 6±2,5dB (1kHz), 8±2,5dB (5kHz)

— Dolby-C (Kodierungseigenschaft) —

6. Den Rauschunterdrückungs-Schalter (NR) auf "Dolby C" einstellen und das Eingangssignal auf 1kHz, 5kHz verändern.
7. Überprüfen, ob die Ausgangsleistung zwischen Anschluß ㉑ des IC401 (linker Kanal) {IC402 (rechter Kanal)} und Masse wie vorgeschrieben gegenüber dem Pegel im rauschunterdrückungsfreiem Zustand verändert wird.

Standard-Wert: 11,5±2,5dB (1kHz), 8,5±2,5dB (5kHz)

FRANÇAIS

■ METHODES DES MEASURES ET REGLAGES

Appareils de mesurage

- Voltmètre électronique
- Oscilloscope
- Compteur de fréquence numérique
- Oscillateur de fréquence audio
- A.T.T. (Atténuateur)
- Voltmètre à C.C.
- Résistance (600Ω)

Réglage de l'angle des têtes de lecture

1. Le raccordement de l'équipement d'essai est montré à la Fig. 1.
2. Faire jouer la partie réglée azimutale (8kHz, −20dB) de la bande d'essai (QZZCFM) et. régler la vis de mise au point azimutale de telle sorte que les puissances de sortie du canal de gauche et du canal de droite soient au maximum.
   (Si les positions de réglage du canal de gauche et du canal de droite sont différentes, trouver une position où les puissances de sortie des canaux de gauche et de droite soient équilibrées, puis effectuer la mise au point.)
3. En même temps, établir une forme d'onde de Lissajous et éliminer la déviation de phase.
4. Après le réglage, bloquer les vis du réglage angulaire et de la hauteur des guides de bande.

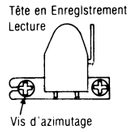


Fig. 2

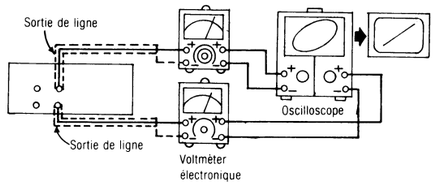


Fig. 1

Réglage de la vitesse de défilement de la bande

1. Le raccordement de l'equipement d'essai est montré à la Fig. 3.
2. Faire jouer la partie centrale de la bande d'essai (QZZCWAT).
3. Régler VR dans le moteur de telle sorte que la puissance de sortie soit en deçà de la normale.

Valeur normalisée: 3000±20Hz

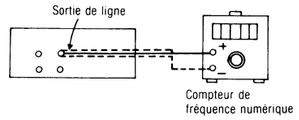


Fig. 3

Réponse en fréquence de la lecture

1. Le raccordement de l'équipment d'essai est montré à la Fig. 4.
2. Faire jouer la partie de la réponse en fréquence de la lecture (315Hz, 12,5kHz~63Hz, −20dB) de la bande d'essai (QZZCFM).
3. Vérifier que la fréquence soit en deçà de la plage montrée à la Fig. 5, à la fois pour le canal de gauche et le canal de droite.

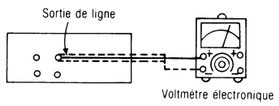


Fig. 4

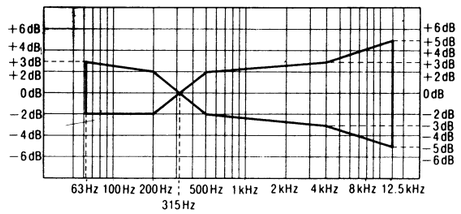


Fig. 5

Réglage d'amplification de la lecture

1. Le raccordement de l'équipement d'essai est montré à la Fig. 4.
2. Faire jouer la partie réglée d'amplification de la lecture (315Hz, 0dB) de la bande d'essai (QZZCFM).
3. Régler VR5 (canal de gauche) [VR6 (canal de droite)] de telle sorte que la puissance de sortie soit en deçà de la normale.

Valeur normalisée: 0,4±0,5dB (0,02V)

Réglage de la tension d'effacement

1. Le raccordement de l'équipement d'essai est montré à la Fig. 6.
2. Régler le commutateur sélecteur de bande sur la position "metal".
3. Introduire la bande métallisée.
4. Appuyer sur les touches d'enregistrement et d'intermission.
5. A ce moment, s'assurer que la puissance de sortie entre TP301 et la masse soit en deçà de la normale.
6. Déconnecter TP302 si la valeur est plus supérieur que 240mA.

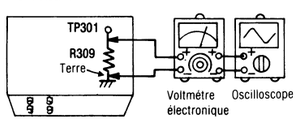


Fig. 6

Valeur normalisée: 210±30mA (Métallisée) (210±30mV)

$$\text{Courant d'effacement} = \frac{\text{Tension à travers la résistance R309}}{1\,(\Omega)}$$

Réponse en fréquence globale

1. Le raccordement de l'équipement d'essai est montré à la Fig. 7.
2. Régler le commutateur sélecteur de bande sur la position normale.
3. Installer une bande vierge normale (QZZCRA) et enregistrer en appliquant un signal (50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz) de 20dB atténués provenant du signal du niveau d'entrée, de référence (1kHz, −24dB).
4. Faire jouer le signal enregistré à l'étape 3 et vérifier que le niveau de chaque fréquence de sortie soit en deçà de la plage montrée 1a Fig. 8 en comparaison avec la fréquence de référence (1kHz).
5. S'il n'est pas en deçà de la plage standard, régler le courant de polarisation avec VR301 (canal de gauche) [VR302 (canal de droite)], de telle sorte que le niveau de fréquence soit en deçà de la normale.
   • Niveau vers la haut dans la plage de fréquence élevée..... Augmenter le courant de polarisation.
   • Niveau vers le bas dans la plage de fréquence élevée..... Diminuer le courant de polarisation.
6. Après cela, amplifier le signal enregistré sur la bande vierge CrO_2 (QZZCRX) et la bande vierge métallisée (QZZCRZ) jusqu'à 14kHz et régler de la même manière que celle mentionnée ci-dessus. Puis, vérifier que le niveau de fréquence soit en deçà de la plage montrée à la Fig. 9.

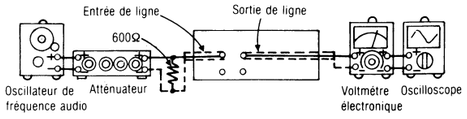


Fig. 7

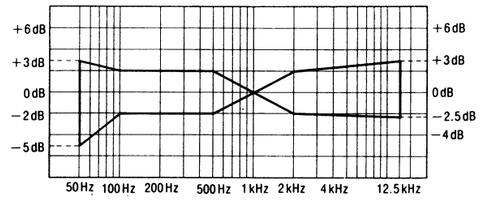


Fig. 8

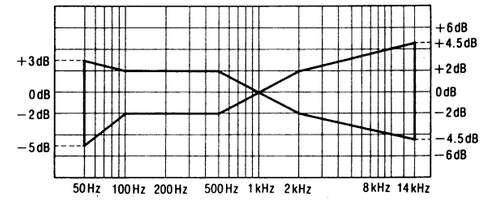


Fig. 9

Réglage d'amplification globale

1. Le raccordement de l'équipement d'essai est montré à la Fig. 7.
2. Régler le commutateur sélecteur de bande sur la position normale.
3. Installer une bande vierge normale (QZZCRA) et appliquer le signal de niveau d'entrée de référence (1kHz, −24dB) sur le mode d'intermission d'enregistrement.
4. Régler la puissance de sortie 0,42V avec l'atténuateur, puis enregistrer.
5. Faire jouer le signal enregistré à l'étape 3 et vérifier que la puissance de sortie soit en deçà de la normale.
6. Si elle n'est pas en deçà de la normale, régler VR101 (canal de gauche) [VR102 (canal de droite)] et répéter les étapes (2), (3) et (4) jusqu'à ce que la puissance de sortie soit en deçà de la normale.

Valeur normalisee: 0,4±0,05V

Circuit de réduction des bruits Dolby

1. Le raccordement de L'équipement d'essai est montré à la Fig. 10.
2. Installer une bande normale et appliquer un signal de 5kHz sur le mode d'intermission d'enregistrement.
3. Régler avec l'atténuateur de telle sorte que la puissance de sortie entre la borne ⑦ de IC401 (canal de gauche) [IC402 (canal de droite)] et la masse soit de 12,3mV.

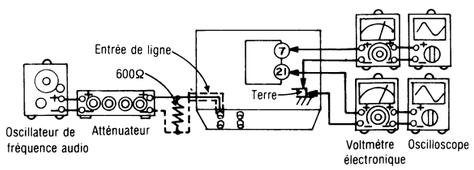


Fig. 10

— Dolby B (Caractéristiques de codage) —

4. Régler le commutateur de réduction des bruits sur "Dolby B" et changer le signal d'entrée sur 1kHz, 5kHz.
5. Vérifier que la puissance de sortie entre la borne 21 de IC401 (canal de gauche) [IC402 (canal de droite)] et la masse change tel qu'il est spécifié à partir du niveau d'entrée sur le mode de sortie de réduction des bruits.

Valeur normalisée: 6±2,5dB (1kHz), 8±2,5dB (5kHz)

— Dolby C (Caractéristiques de codage) —

6. Régler le commutateur de réduction des bruits sur "Dolby C" et changer le signal d'entrée sur 1kHz, 5kHz.
7. Vérifier que la puissance de sortie entre la borne 21 de IC401 (canal de gauche) [IC402 (canal de droite)] et la masse change tel qu'il est spécifié à partir du niveau d'entrée sur le mode de sortie de réduction des bruits.

Valeur normalisée: 11,5±2,5dB (1kHz), 8,5±2,5dB (5kHz)

ESPAÑOL

ESPAÑOL

■ METODOS DE AJUSTE Y MEDIDA

Instrumento de medición

- EVM (Voltimetro electrónico)
- Osciloscopio
- Frecuencimetro digital
- Oscilador AF
- ATT (Atenuador)
- Voltimetro CC
- Resistor (600Ω)

Ajuste acimutal de cabeza

1. La conexión del equipo de prueba se muestra en la Fig. 1.
2. Reproducir la parte ajustada de acimut (8kHz, −20dB) de la cinta de prueba (QZZCFM) y regular el tornillo de ajuste de ángulo de manera que las salidas de CH-I y CH-D sean maximizadas.
   (Cuando las posiciones de ajuste sean diferentes de CH-I y CH-D, encontrar una posición donde las salidas de CH-I y CH-D estén equilibradas y, luego, hacer el ajuste.)
3. Al mismo tiempo, trazar una forma de onda de Lissajous y eliminar la deflexión de fase.
4. Después del ajuste, fije los tornillos de ajuste de altura y ángulo de guía de cinta.

Fig. 2

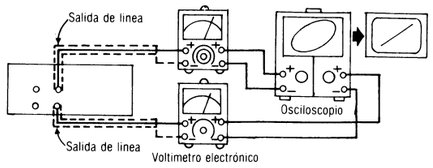


Fig. 1

Ajuste de velocidad de cinta

1. La conexión del equipo de prueba se muestra en la Fig. 3.
2. Reproducir la parte media de la cinta de prueba (QZZCWAT).
3. Ajustar el RV del motor de manera que la salida esté dentro de la estandard.

Valor estandard: 3000±20Hz

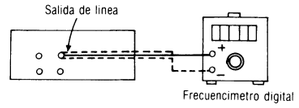


Fig. 3

Respuesta de frecuencia de reproducción

1. La conexión del equipo de prueba se muestra en la Fig. 4.
2. Reproducir la parte de respuesta de frecuencia de reproducción (315Hz, 12,5kHz — 63Hz, −20dB) de la cinta de prueba (QZZCFM).
3. Comprobar que la frecuencia esté dentro de la gama mostrada en la Fig. 5 tanto para CH-I como para CH-D.

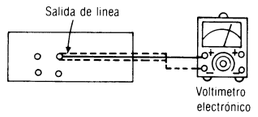


Fig. 4

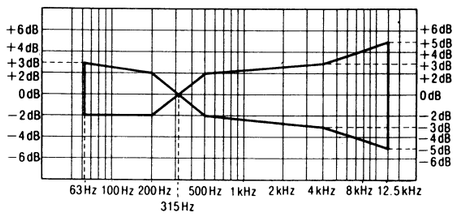


Fig. 5

Ajuste de ganancia de reproducción

1. La conexión del equipo de prueba se muestra en la Fig. 4.
2. Reproducir la parte ajustada de la ganancia de reproducción (315Hz, 0dB) de la cinta de prueba (QZZCFM).
3. Ajustar RV5 (CH-I) {RV6 (CH−D)} de manera que la salida esté dentro de la estandard.

Valor estandard: 0,4±0,5dB (0,02V)

Ajuste de corriente de borrado

1. La conexión del equipo de prueba se muestra en la Fig. 6.
2. Poner el interruptor selector de cinta en la posición "Metal".
3. Insertar la cinta metálica.
4. Apretar los botones de grabación y pausa.
5. En este momento, asegurarse de que la salida entre TP301 y tierra esté dentro de la estandard.
6. Interrumpir TP302 si el valor es superior que 240mA.

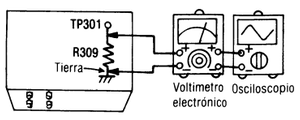


Fig. 6

Valor estandard: 210±30mA (Metal) (210±30mV)

$$\text{Corriente de borrado (A)} = \frac{\text{Voltaje a través de resistor R309}}{1\,(\Omega)}$$

Respuesta de frecuencia total

1. La conexión del equipo de prueba se muestra en la Fig. 7.
2. Poner el interruptor selector de cinta en la posición "normal".
3. Colocar una cinta virgen normal (QZZCRA) y grabar aplicando señal (50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz y 12,5kHz), 20dB atenuada de la señal de nivel de entrada de referencia (1kHz, −24dB).
4. Reproducir la señal grabada en el paso 3 y comprobar que el nivel de cada frecuencia de salida esté dentro de la gama mostrada en la Fig. 8. en comparación con la frecuencia de referencia (1kHz).
5. Si no está dentro de la gama estandard, ajustar la corriente de polarización mediante RV301 (CH-I) {RV302 (CH-D)} de manera que el nivel de frecuencia esté dentro del estandard.
   - Subir el nivel en la gama de alta frecuencia..... Incrementar la corriente de polarización.
   - Bajar el nivel en la gama de alta frecuencia..... Disminuir la corriente de polarización.
6. Después de eso, incrementar la señal grabada en la cinta virgen CrO_2 (QZZCRX) y la cinta virgen metálica (QZZCRZ) hasta 14kHz y ajustar de la misma manera como mencionado arriba y comprobar que el nivel de frecuencia esté dentro de la gama mostrada en la Fig. 9.

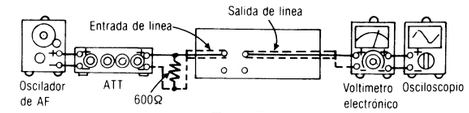


Fig. 7

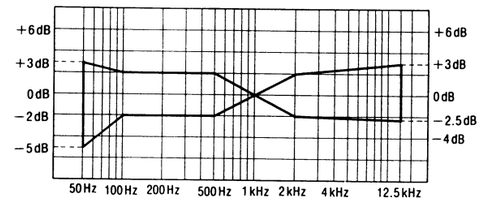


Fig. 8

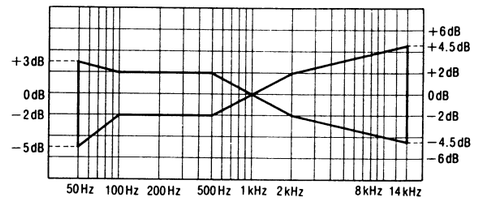


Fig. 9

Ajuste de ganancia total

1. La conexión del equipo de prueba se muestra en la Fig. 7.
2. Poner el interruptor selector de cinta en la posición "normal".
3. Colocar una cinta virgen normal (QZZCRA) y aplicar la senal de nivel de entrada de referencia (1kHz, −24dB) en la modalidad de pausa de grabación.
4. Ajustar la salida 0,42V mediante atenuador y, luego, grabar.
5. Reproducir la señal grabada en el paso 3 y comprobar que la salida esté dentro de la estandard.
6. Si no está dentro de la estandard, ajustar RV101 (CH-I) {RV102 (CH-D)} y repetir el paso (2), (3) y (4) hasta que la salida esté dentro de la estandard.

Valor estandard: 0,4V±0,05V

Circuito RR Dolby

1. La conexión del equipo de prueba se muestra en la Fig. 10.
2. Colocar una cinta normal y aplicar señal 5kHz en la modalidad de pausa de grabación.
3. Ajustar mediante atenuador de manera que la salida entre terminal ⑦ de IC401 (CH-I) {IC402 (CH-D)} y tierra sea 12,3mV.

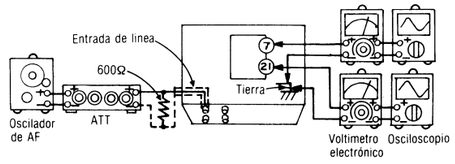


Fig. 10

— Dolby B (Codificar característica) —

4. Poner el interruptor RR en "Dolby B" y cambiar la señal de entrada a 1kHz, 5kHz.
5. Comprobar que la salida entre terminal ㉑ de IC401 (CH-I) {IC402 (CH-D)} y tierra cambie como especificado por el nivel en la modalidad de salida RR.

Valor estandard: 6±2,5dB (1kHz), 8±2,5dB (5kHz)

— Dolby C (Codificar característica) —

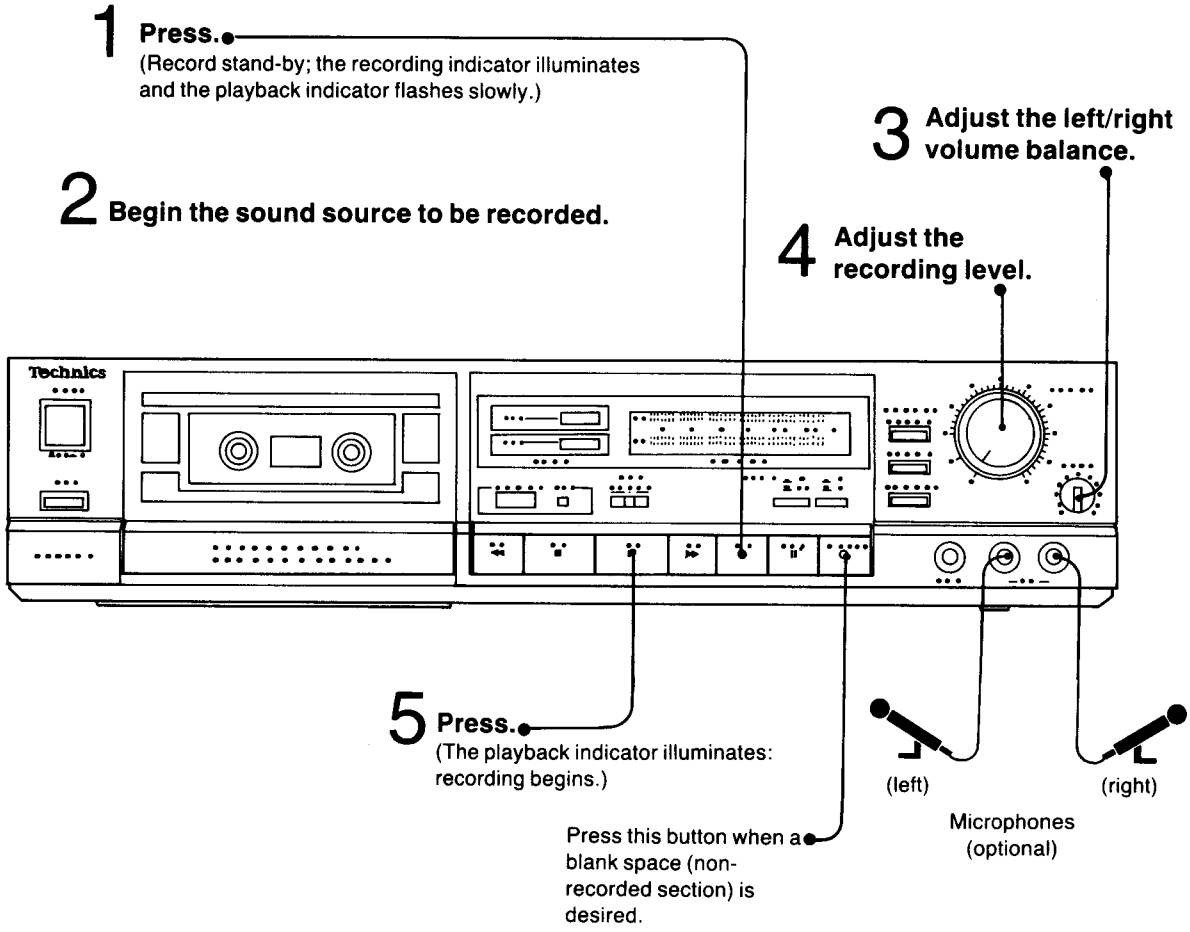
6. Poner el interruptor RR en "Dolby C" y cambiar la señal de entrada a 1kHz, 5kHz.
7. Comprobar que la salida entre terminal ㉑ de IC401 (CH-I) {IC402 (CH-D)} y tierra cambie como especificado por el nivel en la modalidad de salida RR.

Valor estandard: 11,5±2,5dB (1kHz), 8,5±2,5dB (5kHz)

Printed in Japan
860505600 Ⓗ AH. MS.

■ OPERATION

Recording


1 Press.
(Record stand-by; the recording indicator illuminates and the playback indicator flashes slowly.)
2 Begin the sound source to be recorded.
3 Adjust the left/right volume balance.
4 Adjust the recording level.
Technics
5 Press.
(The playback indicator illuminates: recording begins.)
Press this button when a blank space (non-recorded section) is desired.
(left)
(right)
Microphones (optional)

Record muting

This is a feature which makes it possible to make a non-recorded portion on the tape while a recording is in progress.

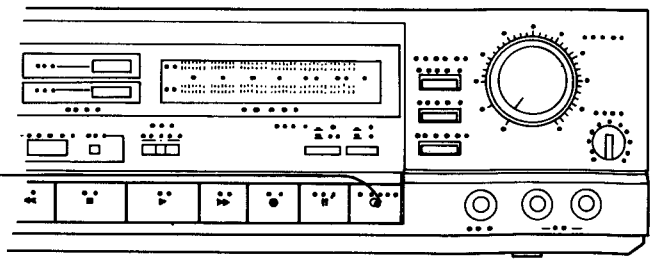
This feature is convenient in the following ways:

- To avoid recording unwanted commercial announcements.
- To avoid recording the noise produced when the phono needle descends to a disc.
- To produce the interval between tunes which is necessary for correct operation of the tune-select system.

During recording

- **Press once.**
  (After about 4 seconds, the unit will automatically change to the recording stand-by mode.)
- **Press for more than 4 seconds.**
  (The unit will automatically change to the recording stand-by mode when the button is released.)

- A recording can be started immediately, even during the record-muting operation, by pressing the playback button for the side to be recorded.



■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 4 screws.

Ref. No. 2	How to remove the mechanism unit
Procedure 1 → 2	• Remove the 2 screws (❶, ❷). • Push the eject button.

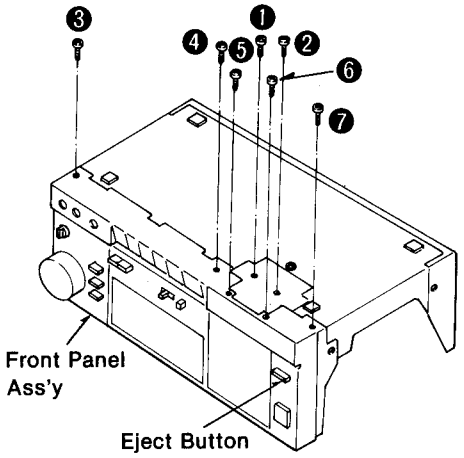


Fig. 1

• Remove the 3 screws (❶~❸).

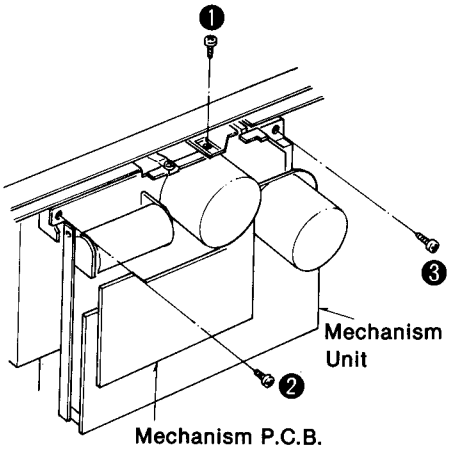


Fig. 2

Ref. No. 3	How to remove the main P.C.B.
Procedure 1 → 3	• Remove the 5 screws (❶~❺) • Open the sides of back chassis, and then pull down it.

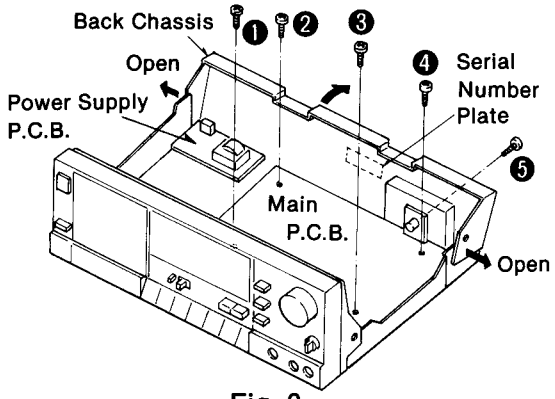


Fig. 3

Ref. No. 4	How to remove the mode SW/LED meter P.C.B.
Procedure 1 → 4	• Pull out the volume knob. • Remove the 3 screws (❶~❸).

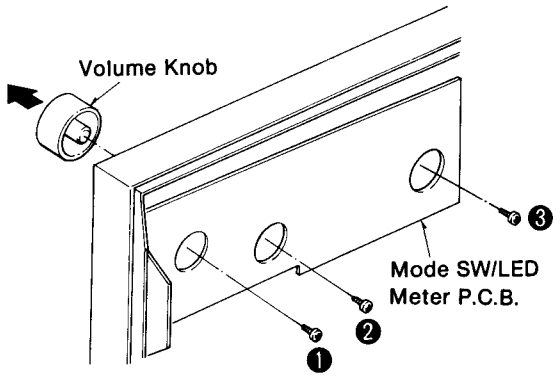


Fig. 4

Ref. No. 5	How to remove the operation SW P.C.B.
Procedure 1 → 3 → 4 → 5	• Remove the 4 screws (❶~❹). • Push the tab.

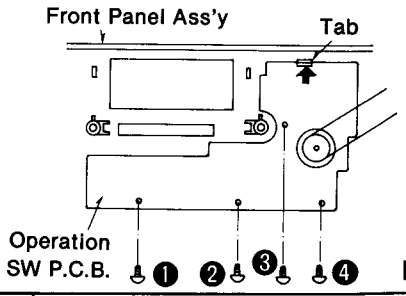


Fig. 5

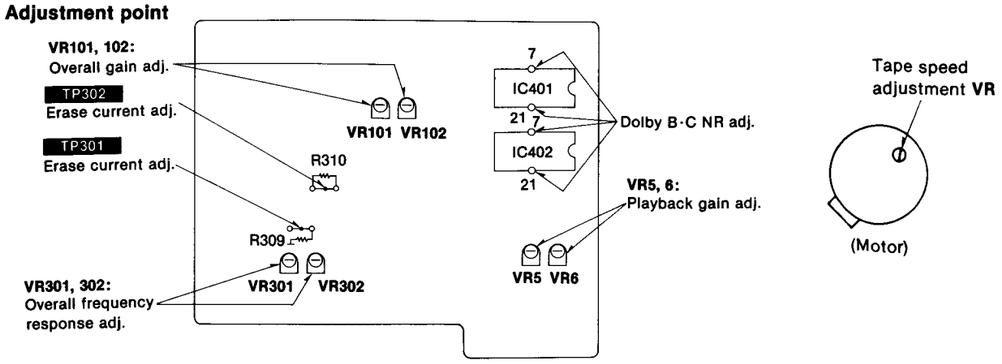
Ref. No. 6	How to remove the front panel
Procedure 1 → 2 → 4 → 5 → 6	• Remove the 5 screws (❸~❼). (See Fig. 1.)

*** Serial No. Indication**

• The serial number plate of the product is attached to the back chassis (shown in Fig. 3).

■ MEASUREMENT AND ADJUSTMENT METHODES

Adjustment point



Measurement Condition

- Input level controls; Maximum
- Balance controls; Center
- Tape select switch; Normal
- Dolby NR switch; Out
- Timer start switch: Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature 20±5°C (68±9°F)

Measuring instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT (Attenuator)
- DC voltmeter
- Resistor (600Ω)

Test tape

- Head azimuth adjustment (8kHz, −20dB); QZZCFM
- Tape speed adjustment (3kHz, −10dB); QZZCWAT
- Playback frequency responce (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, −20dB); QZZCFM
- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment
  - Normal reference blank tape; QZZCRA
  - CrO_2 reference blank tape; QZZCRX
  - Metal reference blank tape; QZZCRZ

Head azimuth adjustment

1. Test equipment connection is shown in Fig. 1.
2. Playback the azimuth adjusted part (8kHz, −20dB) of the test tape (QZZCFM) and regulate the angle adjusting screw so that the outputs of L-CH and R-CH are maximized. (When the adjusting positions are different with L-CH and R-CH, find a position where the outputs of L-CH and R-CH are balanced, and then make the adjustment.)
3. At the same time, obtain a lissajous waveform and eliminate phase deflection.
4. After adjustment, lock the tape guide height and angle adjustment screws.

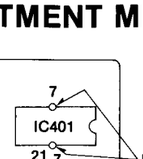


Fig. 2

Fig. 1

Tape speed adjustment

1. Test equipment connection is shown in Fig. 3.
2. Playback the middle part of the test tape (QZZCWAT).
3. Adjust the VR in the motor so that the output is within the standard.

Standard value: 3000±20Hz

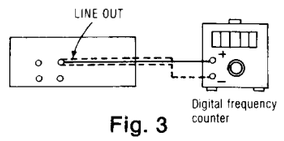


Fig. 3

Playback frequency response

1. Test equipment connection is shown in Fig. 4.
2. Playback the playback frequency response part (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM)..
3. Check that the frequency is within the range shown in Fig. 5 for both L-CH and R-CH.

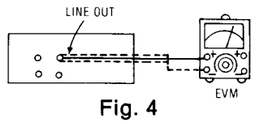


Fig. 4

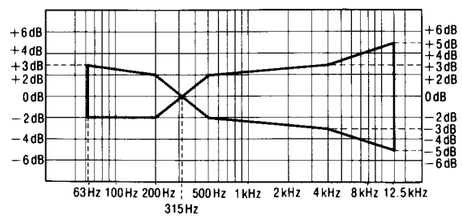


Fig. 5

Playback gain adjustment

1. Test equipment connection is shown in Fig. 4.
2. Playback the playback gain adjusted part (315Hz, 0dB) of the test tape (QZZCFM).
3. Adjust VR5 (L-CH) {VR6 (R-CH)} so that the output is within the standard.

Standard value: 0.4±0.5dB (0.02V)

Erase current adjustment

1. Test equipment connection is shown in Fig. 6.
2. Set the tape selector switch to the metal position.
3. Insert the metal tape.
4. Press the record and pause buttons.
5. At this time make sure that the output between TP301 and the ground is within the standard.
6. Cut off TP302 if the value is more than 240mA.

Standard value: 210±30mA (Metal) (210±30mV)

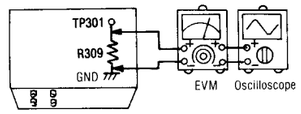


Fig. 6

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R309}}{1\,(\Omega)}$$

Overall frequency response

1. Test equipment connection is shown in Fig. 7.
2. Set the tape selector switch to the normal position.
3. Set a normal blank tape (QZZCRA) and record by applying signal (50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz and 12.5kHz), 20dB attenuated from the reference input level signal (1kHz, −24dB).
4. Playback the signal recorded in step 3, and check that the level of each output frequency is within the range shown in Fig. 8 in comparison with the reference frequency (1kHz).
5. If it is not within the standard range, adjust the bias current by VR301 (L-CH) {VR302 (R-CH)} so that the frequency level is within the standard.
   - Level up in high frequency range.....Increase the bias current.
   - Level down in high frequency range.....Decrease the bias current.
6. After that increase the signal recorded on CrO_2 blank tape (QZZCRX) and metal blank tape (QZZCRZ) up to 14kHz and adjust in the same way as mentioned above and check that the frequency level is within the range shown in Fig. 9.

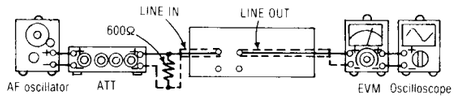


Fig. 7

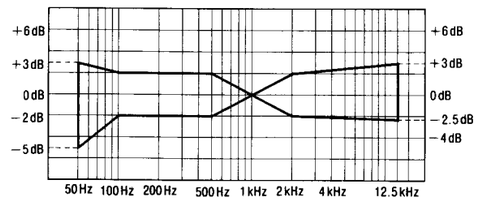


Fig. 8

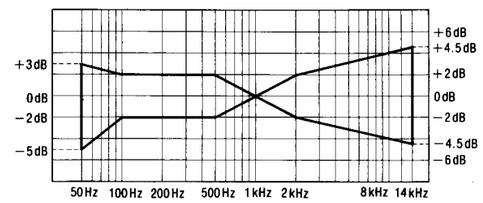


Fig. 9

Overall gain adjustment

1. Test equipment connection is shown in Fig. 7.
2. Set the tape selector switch to the normal position.
3. Set a normal blank tape (QZZCRA) and apply the reference input level signal (1kHz, −24dB) in record pause mode.
4. Adjust the output 0.42V by attenuator and then record.
5. Playback the signal recorded in step 3, and check that the output is within the standard.
6. If it is not within the standard, adjust VR101 (L-CH) {VR102 (R-CH)} and repeat the step (2), (3) and (4) until the output is within the standard.

Standard value: 0.4V±0.05V

Dolby NR circ

1. Test equipm
2. Set a normal
3. Adjust by att
   IC401 (L-CH)

— Dolby B (Enc

4. Set NR swit
5. Check that
   {IC402 (R-CH

Stand

— Dolby C (Enc

6. Set NR swit
7. Check that t
   from the leve

Stand

■ MICROC (IC901: L

Terminal No.	Symbol
1.	PDϕ
2.	PD1
3.	PD2
4.	PD3
5.	Extal
6.	Xtal
7.	INT
8.	RES
9.	PEϕ
10.	PE1
11.	PE2
12.	PE3

Tape speed
adjustment **VR**

otor)

roller are clean.
5°C (68±9°F)

0dB); QZZCFM
ll gain adjustment
ZCRA
CRX
CRZ

Oscilloscope

Digital frequency
counter

ig. 3

+6dB
+5dB
+4dB
+3dB
+2dB
0dB
−2dB
−3dB
−4dB
−5dB
−6dB

2kHz 4kHz 8kHz 12.5kHz

Playback gain adjustment

1. Test equipment connection is shown in Fig. 4.
2. Playback the playback gain adjusted part (315Hz, 0dB) of the test tape (QZZCFM).
3. Adjust VR5 (L-CH) {VR6 (R-CH)} so that the output is within the standard.

Standard value: 0.4±0.5dB (0.02V)

Erase current adjustment

1. Test equipment connection is shown in Fig. 6.
2. Set the tape selector switch to the metal position.
3. Insert the metal tape.
4. Press the record and pause buttons.
5. At this time make sure that the output between TP301 and the ground is within the standard.
6. Cut off TP302 if the value is more than 240mA.

Standard value: 210±30mA (Metal) (210±30mV)

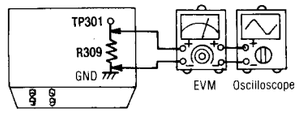


Fig. 6

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R309}}{1\ (\Omega)}$$

Overall frequency response

1. Test equipment connection is shown in Fig. 7.
2. Set the tape selector switch to the normal position.
3. Set a normal blank tape (QZZCRA) and record by applying signal (50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz and 12.5kHz), 20dB attenuated from the reference input level signal (1kHz, −24dB).
4. Playback the signal recorded in step 3, and check that the level of each output frequency is within the range shown in Fig. 8 in comparison with the reference frequency (1kHz).
5. If it is not within the standard range, adjust the bias current by VR301 (L-CH) {VR302 (R-CH)} so that the frequency level is within the standard.
   - Level up in high frequency range.....Increase the bias current.
   - Level down in high frequency range.....Decrease the bias current.
6. After that increase the signal recorded on CrO_2 blank tape (QZZCRX) and metal blank tape (QZZCRZ) up to 14kHz and adjust in the same way as mentioned above and check that the frequency level is within the range shown in Fig. 9.

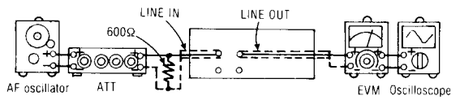


Fig. 7

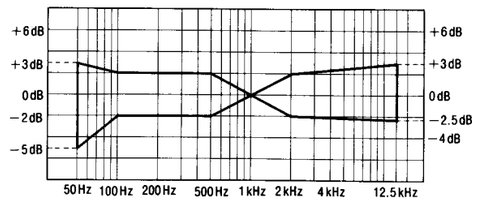


Fig. 8

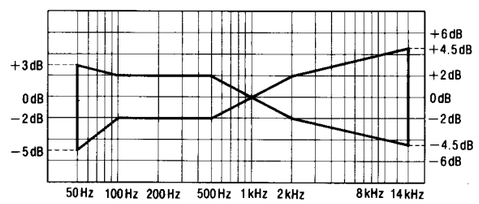


Fig. 9

Overall gain adjustment

1. Test equipment connection is shown in Fig. 7.
2. Set the tape selector switch to the normal position.
3. Set a normal blank tape (QZZCRA) and apply the reference input level signal (1kHz, −24dB) in record pause mode.
4. Adjust the output 0.42V by attenuator and then record.
5. Playback the signal recorded in step 3, and check that the output is within the standard.
6. If it is not within the standard, adjust VR101 (L-CH) {VR102 (R-CH)} and repeat the step (2), (3) and (4) until the output is within the standard.

Standard value: 0.4V±0.05V

Dolby NR circuit

1. Test equipment connection is shown in Fig. 10.
2. Set a normal tape and apply 1kHz signal in record pause mode.
3. Adjust by attenuator so that the output between terminal 7 of IC401 (L-CH) {IC402 (R-CH)} and ground is 12.3mV.

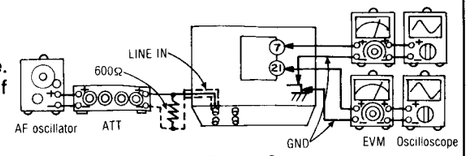


Fig. 10

— Dolby B (Encode characteristic) —

4. Set NR switch to "Dolby B" and change the input signal to 1kHz, 5kHz.
5. Check that the output between terminal 21 of IC401 (L-CH) {IC402 (R-CH)} and ground change as specified from the level in NR out mode.

Standard value: 6± 2.5dB (1kHz), 8± 2.5dB (5kHz)

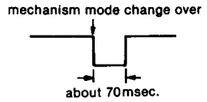
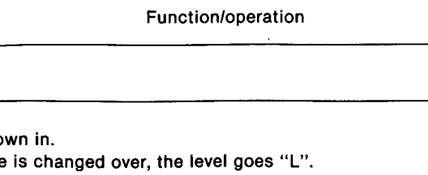
— Dolby C (Encode characteristic) —

6. Set NR switch to "Dolby C" and change the input signal to 1kHz, 5kHz.
7. Check that the output between terminal 21 of IC401 (L-CH) {IC402 (R-CH)} and ground change as specified from the level in NR out mode.

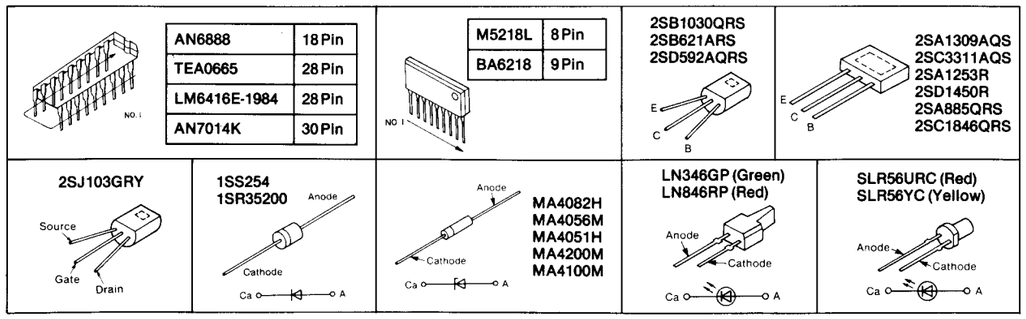
Standard value: 11.5± 2.5dB (1kHz), 8.5± 2.5dB (5kHz)

■ MICROCOMPUTER TERMINAL FUNCTION AND WAVEFORM (IC901: LM6416E-1984)

Terminal No.	Symbol	Function/operation
1.	PDϕ	REC LED • "L" in rec mode, light up in rec mode. • Light up in immediately after timer rec command given.
2.	PD1	Bias control • "L" in rec mode only.
3.	PD2	• Connection to GND.
4.	PD3	Power off detection • In power off mode, "H" in direct muting mode. Direct muting
5. 6.	Extal Xtal	Clock oscillation • Clock oscillation of about 400kHz
7.	INT	Reel table rotation detection • Rotation of reel table is detected by photo senser for the detection of tape end.
8.	RES	Reset terminal • Used to reset the microcomputer when power is thrown in.
9.	PEϕ	PLAY LED • Light up in play mode. • In pause mode, LED is lit up or down at intervals of about 0.5sec. • In music select mode, LED is lit up or down at intervals of about 100msec. Pause: about 0.5sec. / about 0.5sec. MS: about 100msec. / about 100msec.
10.	PE1	• Connection to GND.
11.	PE2	Direct muting output • "L" in muting mode. muting
12.	PE3	Auto rec mute output • In rec mode only, "L" in auto rec mute mode. auto rec mute

Terminal No.	Symbol	Function/operation
13. 14.	TEST V_{ss}	• Connection to GND
15.	PFϕ	Capstan motor drive • "H" when power is thrown in. • When mechanism mode is changed over, the level goes "L".
16.	PF1	FF/REW motor control • "H" in rew mode.
17.	PF2	FF/REW motor control • "H" in FF/Play mode.
18.	PF3	FF/REW motor torque control • "L" in play mode.
19.	PGϕ	Plunger drive • The level goes "L" for about 70msec. when the mechanism mode is changed (when shifting the head angle.) 
20.	V_{DD}	Power supply • Operative on about 5.6 volts.
21.	PAϕ	Input switch stage reading • Input of rec inh. switch (S901) and FF switch (S704). • The above-mentioned inputs are read in accordance with PCϕ and PC2.
22.	PA1	Input switch stage reading. • Input of mechanism play switch (S902), play switch (S703) and auto rec mute switch (S707). • The above-mentioned inputs are read in sccordance with PCϕ~PC2.
23.	PA2	Input switch stage reading • Input of timer play switch (S708), stop (S702) and rec switch (S705). • The above-mentioned inputs are read in accordance with PCϕ~PC2.
24.	PA3	Input switch stage reading • Input of timer rec switch (S708), rew switch (S701) and pause switch (S706). • The above mentioned inputs are read in accordance with PCϕ~PC2.
25. 26. 27.	PCϕ PC1 PC2	Input switch scanning 
28.	PC3	• Non connection.

•Terminal Guide of Transistors, Diodes and IC's



■ RESISTORS AND CAPACITORS

Notes:
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- The unit of resistance is Ω (ohm). K=1000Ω, M=1000kΩ
- The unit of capacitance is μF (microfarad). P=10^{-6}μF.
- Bracketed indications in Ref. columns specify the area. Parts without these indications can be used for all area.

Resistor Type		Wattage		Tolerance	
ERD	: Carbon	10	: 1/8W	G	: ±2%
ERO	: Film	12	: 1/2W	J	: ±5%
ERG	: Metal Oxide	25	: 1/4W		
ERC	: Solid	1	: 1W		
		2	: 2W		
		S1	: 1/2W		
		S2	: 1/4W		

ERD10TLJ□□□ → Chip type carbon
ERO10MKG□□□ → Chip type metal film

Capacitor Type		Voltage				Tolerance	
		ECEA Type		Other			
ECEA	: Electrolytic	0J	: 6.3V	1H	: 50V	CJ	: ±0.25pF
ECCD	: Ceramic	1A	: 10V	2H	: 500V	J	: ±5%
ECKD	: Ceramic	1C	: 16V	1	: 100V	K	: +10%
ECQM	: Polyester	1E	: 25V	KC	: 400V	Z	: +80%, −20%
ECQP	: Polyester	1H	: 50V			Y	: ±22%
ECET	: Electrolytic	1J	: 63V				
ECEA...N	: Non-polar Electrolytic	1V	: 35V				
		25	: 25V				
		56	: 56V				

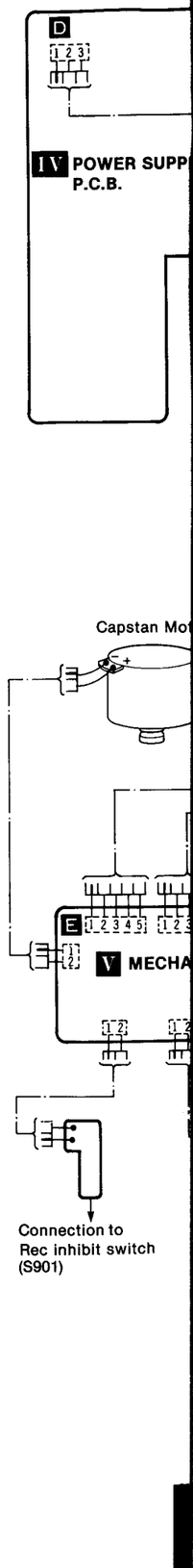
• RESISTORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R1, 2	ERDS2TJ223	22k			
R3, 4	ERDS2TJ472	4.7k	R409, 410	ERDS2TJ333	33k
R5, 6	ERDS2TJ155	1.5M	R411, 412	ERDS2TJ823	82k
R7, 8	ERDS2TJ101	100	R415, 416	ERDS2TJ512	5.1k
R9, 10	ERDS2TJ101	100	R417, 418	ERDS2TJ683	68k
R13, 14	ERDS2TJ473	47k	R419, 420	ERDS2TJ222	2.2k
R15, 16	ERDS2TJ102	1k	R421, 422	ERDS2TJ823	82k
R17, 18	ERDS2TJ820	82	R601	ERDS2TJ561	560
R19, 20	ERDS2TJ102	1k	R602	ERDS2TJ681	680
R21, 22	ERDS2TJ123	12k			
			R603, 604 [EK, XL]	ERG1ANJ560	56
R23, 24	ERDS2TJ564	560k	**R603, 604** [other]	ERDS1FJ560	56
R25, 26	ERDS2TJ113	11k			
R101, 102	ERDS2TJ222	2.2k	R605, 606 [EK, XL] only	ERQ14LKR22	0.22
R103, 104	ERDS2TJ153	15k			
R105, 106	ERDS2TJ221	220	R701	ERDS2TJ562	5.6k
R107, 108	ERDS2TJ471	470	R702	ERDS2TJ472	4.7k
R109, 110	ERDS2TJ103	10k	R703, 704	ERDS2TJ363	36k
R111, 112	ERDS2TJ183	18k	R705	ERDS2TJ472	4.7k
R117, 118	ERDS2TJ393	39k	R706, 707	ERDS2TJ154	150k
R119, 120	ERDS2TJ223	22k	R708	ERDS2TJ471	470
			R710	ERDS2TJ271	270
R121, 122	ERDS2TJ332	3.3k	R712, 713	ERDS2TJ103	10k
R123, 124	ERDS2TJ682	6.8k	R714, 715	ERDS2TJ103	10k
R125, 126	ERDS2TJ182	1.8k			
R127, 128	ERDS2TJ823	82k	R716	ERDS2TJ181	180
R129, 130	ERDS2TJ102	1k	R717, 718	ERDS2TJ121	120
R131, 132	ERDS2TJ390	39	R901	ERDS2TJ102	1k
R201	ERDS2TJ153	15k	R902	ERDS2TJ182	1.8k
R202	ERDS2TJ152	1.5k	R903	ERDS2TJ103	10k
R203, 204	ERDS2TJ103	10k	R904	ERDS2TJ471	470
R205	ERDS2TJ102	1k	R905, 906	ERDS2TJ103	10k
			R907	ERDS2TJ105	1M
R206	ERDS2TJ222	2.2k	R908	ERDS2TJ471	470
R207	ERDS2TJ562	5.6k	R909	ERDS2TJ392	3.9k
R208	ERDS2TJ472	4.7k			
R209	ERDS2TJ182	1.8k	R910	ERDS2TJ223	22k
R210	ERDS2TJ103	10k	R911	ERDS2TJ103	10k
R211	ERDS2TJ332	3.3k	R915	ERDS2TJ104	100k
R212	ERDS2TJ822	8.2k	R916	ERDS2TJ821	820
R219	ERDS2TJ123	12k	R917	ERDS2TJ104	100k
R251, 252	ERDS2TJ103	10k	R918 except [EK, XL]	ERDS2TJ821	820
R253, 254	ERDS2TJ223	22k			
			R919	ERDS2TJ391	390
R255, 256	ERDS2TJ223	22k	R920, 921	ERDS2TJ103	10k
R257	ERDS2TJ223	22k	R925	ERG1ANJ390	39
R259	ERDS2TJ223	22k	R926 [EK, XL] only	ERDS2TJ271	270
R261, 262	ERDS2TJ222	2.2k			
R263, 264	ERDS2TJ222	2.2k	R934 [EK, XL] only	ERDS2TJ471	470
R266	ERDS2TJ332	3.3k			
R267	ERDS2TJ272	2.7k	R935 [EK, XL] only	ERDS2TJ224	220k
R270	ERDS2TJ103	10k			
R299	ERDS2TJ473	47k	R936 [EK, XL] only	ERDS2TJ331	330
R301, 302	ERDS2TJ683	68k			
			R937, 938 [EK, XL] only	ERDS2TJ472	4.7k
R303, 304	ERDS2TJ220	22			
R305 [EK, XL] only	ERDS2TJ560	56	**R939** [EK, XL]	ERG3ANP470	47
			R939 [other]	ERG1ANP390	39
R306	ERDS2TJ221	220			
R307	ERDS2TJ561	560			
R309	ERDS2TJ1R0	1			
R310	ERDS2TJ270	27			
R401, 402	ERDS2TJ242	2.4k			
R403, 404	ERDS2TJ562	5.6k			
R405, 406	ERDS2TJ332	3.3k			
R407, 408	ERDS2TJ102	1k			

• CAPACITORS

Ref. No.	Part No.	Value
C1, 2	ECKD1H122KB	0.0012
C3, 4	ECKD1H681KB	680p
C5, 6	ECKD1H681KB	680p
C7, 8	ECEA1CU100	10
C9, 10	ECEA0JU221	220
C11, 12	ECQB1H562JZ	0.0056
C15, 16	ECEA1HU2R2	2.2
C17, 18	ECEA1HU010	1
C101, 102	ECEA1CU100	10
C103, 104	ECQB1H392JZ	0.0039
C105, 106	ECQB1H822JZ	0.0082
C109, 110	ECKD2H121KB	120p
C111, 112	ECKD1H561KB	560p
C115, 116	ECEA1HU010	1
C117, 118	ECQB1H472JZ	0.0047
C119, 120	ECEA1HU010	1
C121, 122	ECEA1CU100	10
C123, 124	ECEA1CU100	10
C201	ECEA1AU221	220
C202	ECEA1EU4R7	4.7
C203	ECEA1CU100	10
C204	ECFD1E104MD	0.1
C205	ECEA1AU220	22
C207	ECKD1H333ZF	0.033
C301	ECQP1183JZ	0.018
C302	ECQB1H332JZ	0.0032
C303, 304	ECQB1H222JZ	0.0022
C305	ECQB1H222JZ	0.0022
C306	ECEA1EU4R7	4.7
C401, 402	ECCD1H820K	82p
C403, 404	ECQB1H472JZ	0.0047
C405, 406	ECEA1CU100	10
C407, 408	ECQM1H473JZ	0.047
C409, 410	ECQM1H224JZ	0.22
C411, 412	ECEA50MR68R	0.68
C413, 414	ECQB1H103JZ	0.01
C415, 416	ECQB1H472JZ	0.0047
C417, 418	ECEA1CU100	10
C419, 420	ECQM1H473JZ	0.047
C421, 422	ECQM1H224JZ	0.22
C423, 424	ECEA50MR68R	0.68
C601, 602	ECEA1CU221	220
C603, 604	ECKD1H223ZF	0.022
C605	ECEA1CU332	3300
C606	ECEA1CU102	1000
C607, 608	ECEA1AU221	220
C612	ECKD2H682PEL	0.0068
C613, 614	ECKD1H103ZF	0.01
C701, 702	ECEA1HU2R2	2.2
C703	ECKD1H223ZF	0.022
C704	ECKD1H333ZF	0.033
C901	ECKD1H103ZF	0.01
C902	ECEA0JU101	100
C903	ECKD1H103ZF	0.01
C904	ECEA1HU010	1
C905, 906	ECCD1H221K	220p
C907	ECEA1HU010	1
C908	ECEA1CN100	10
C909	ECKD1H103ZF	0.01
C910 [EK, XL] only	ECKD1H103ZF	0.01

■ WIRING CON



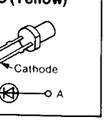
de change over

70msec.

n (S707).

2SA1309AQS
2SC3311AQS
2SA1253R
2SD1450R
2SA885QRS
2SC1846QRS

RC (Red)
C (Yellow)



■ RESISTORS AND CAPACITORS

Notes:
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- The unit of resistance is Ω (ohm). K=1000Ω, M=1000kΩ
- The unit of capacitance is μF (microfarad). P=10^{-6}μF.
- Bracketed indications in Ref. columns specify the area. Parts without these indications can be used for all area.

Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	G : ±2%
ERO : Film	12 : 1/2W	J : ±5%
ERG : Metal Oxide	25 : 1/4W	
ERC : Solid	1 : 1W	
	2 : 2W	
	S1 : 1/2W	
	S2 : 1/4W	

ERD10TLJ□□□ → Chip type carbon
ERO10MKG□□□ → Chip type metal film

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	0J : 6.3V	1H : 50V	CJ : ±0.25pF
ECCD : Ceramic	1A : 10V	2H : 500V	J : ±5%
ECKD : Ceramic	1C : 16V	1 : 100V	K : +10%
ECQM : Polyester	1E : 25V	KC : 400V	Z : +80%, −20%
ECQP : Polyester	1H : 50V		Y : ±22%
ECET : Electrolytic	1J : 63V		
ECEA...N : Non-polar Electrolytic	1V : 35V		
	25 : 25V		
	56 : 56V		

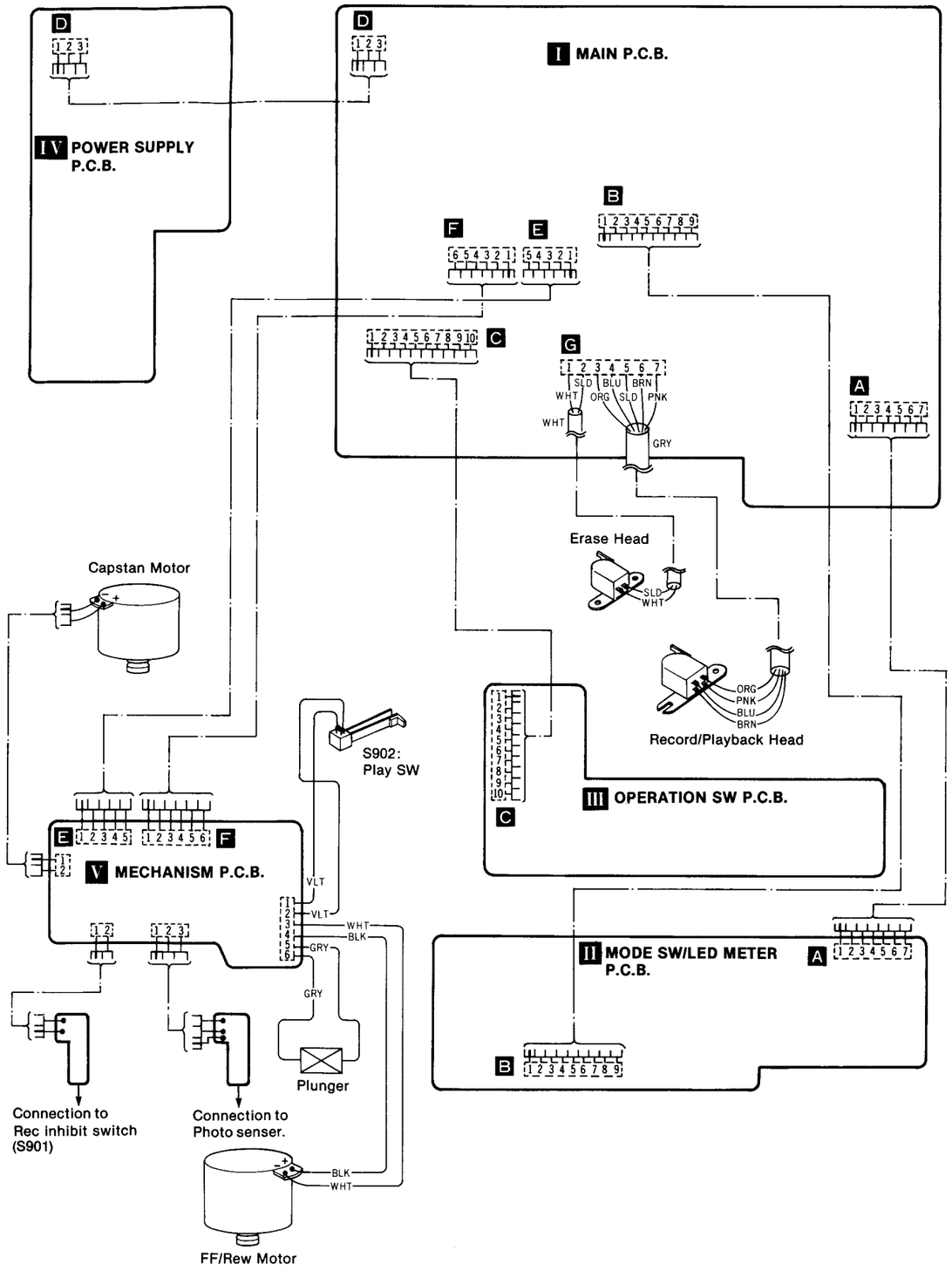
• RESISTORS

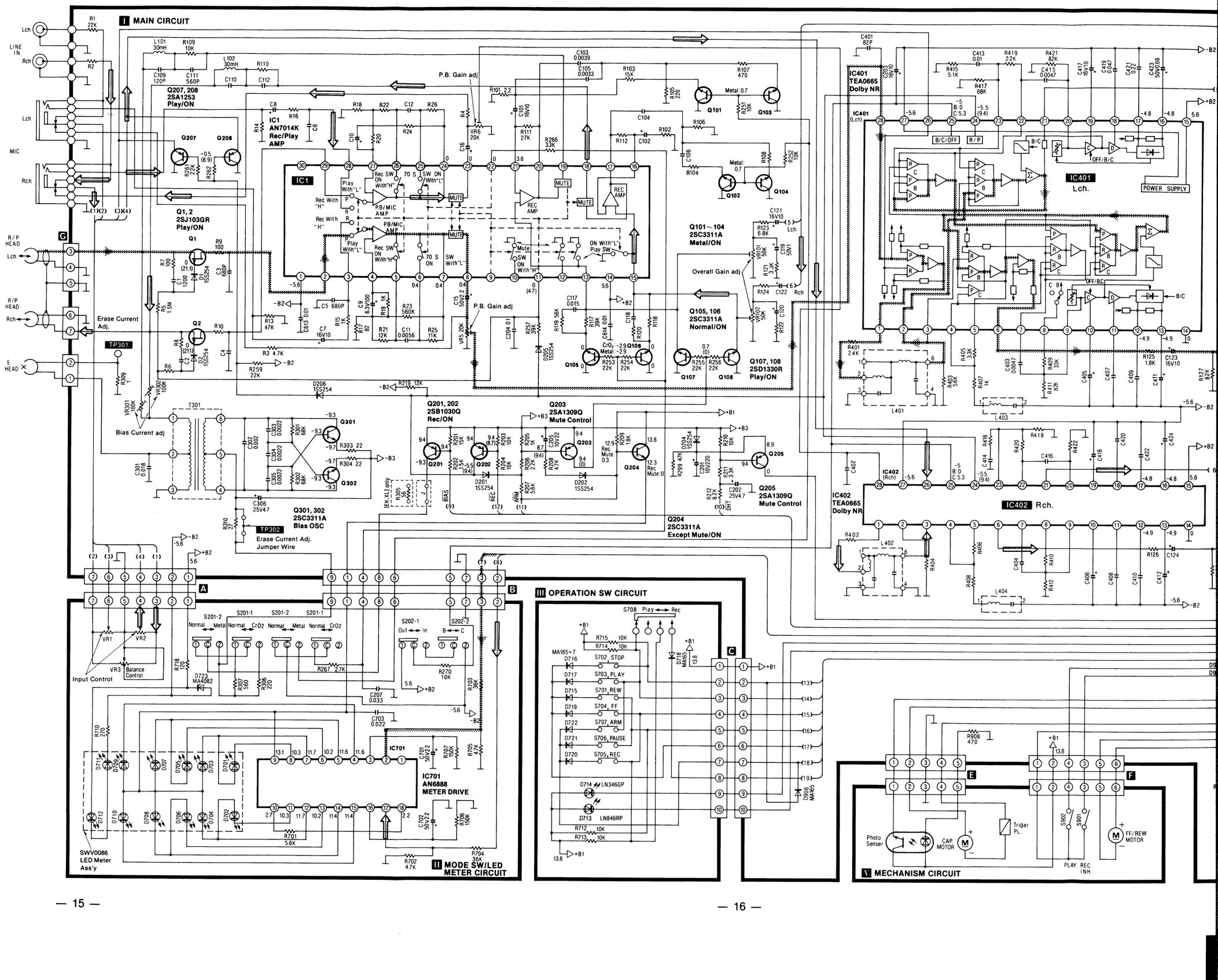
Ref. No.	Part No.	Value
R1, 2	ERDS2TJ223	22k
R3, 4	ERDS2TJ472	4.7k
R5, 6	ERDS2TJ155	1.5M
R7, 8	ERDS2TJ101	100
R9, 10	ERDS2TJ101	100
R13, 14	ERDS2TJ473	47k
R15, 16	ERDS2TJ102	1k
R17, 18	ERDS2TJ820	82
R19, 20	ERDS2TJ102	1k
R21, 22	ERDS2TJ123	12k
R23, 24	ERDS2TJ564	560k
R25, 26	ERDS2TJ113	11k
R101, 102	ERDS2TJ222	2.2k
R103, 104	ERDS2TJ153	15k
R105, 106	ERDS2TJ221	220
R107, 108	ERDS2TJ471	470
R109, 110	ERDS2TJ103	10k
R111, 112	ERDS2TJ183	18k
R117, 118	ERDS2TJ393	39k
R119, 120	ERDS2TJ223	22k
R121, 122	ERDS2TJ332	3.3k
R123, 124	ERDS2TJ682	6.8k
R125, 126	ERDS2TJ182	1.8k
R127, 128	ERDS2TJ823	82k
R129, 130	ERDS2TJ102	1k
R131, 132	ERDS2TJ390	39
R201	ERDS2TJ153	15k
R202	ERDS2TJ152	1.5k
R203, 204	ERDS2TJ103	10k
R205	ERDS2TJ102	1k
R206	ERDS2TJ222	2.2k
R207	ERDS2TJ562	5.6k
R208	ERDS2TJ472	4.7k
R209	ERDS2TJ182	1.8k
R210	ERDS2TJ103	10k
R211	ERDS2TJ332	3.3k
R212	ERDS2TJ822	8.2k
R219	ERDS2TJ123	12k
R251, 252	ERDS2TJ103	10k
R253, 254	ERDS2TJ223	22k
R255, 256	ERDS2TJ223	22k
R257	ERDS2TJ223	22k
R259	ERDS2TJ223	22k
R261, 262	ERDS2TJ222	2.2k
R263, 264	ERDS2TJ222	2.2k
R266	ERDS2TJ332	3.3k
R267	ERDS2TJ272	2.7k
R270	ERDS2TJ103	10k
R299	ERDS2TJ473	47k
R301, 302	ERDS2TJ683	68k
R303, 304	ERDS2TJ220	22
R305 [EK, XL] only	ERDS2TJ560	56
R306	ERDS2TJ221	220
R307	ERDS2TJ561	560
R309	ERDS2TJ1R0	1
R310	ERDS2TJ270	27
R401, 402	ERDS2TJ242	2.4k
R403, 404	ERDS2TJ562	5.6k
R405, 406	ERDS2TJ332	3.3k
R407, 408	ERDS2TJ102	1k
R409, 410	ERDS2TJ333	33k
R411, 412	ERDS2TJ823	82k
R415, 416	ERDS2TJ512	5.1k
R417, 418	ERDS2TJ683	68k
R419, 420	ERDS2TJ222	2.2k
R421, 422	ERDS2TJ823	82k
R601	ERDS2TJ561	560
R602	ERDS2TJ681	680
R603, 604 [EK, XL]	ERG1ANJ560	56
R603, 604 [other]	ERDS1FJ560	56
R605, 606 [EK, XL] only	ERQ14LKR22	0.22
R701	ERDS2TJ562	5.6k
R702	ERDS2TJ472	4.7k
R703, 704	ERDS2TJ363	36k
R705	ERDS2TJ472	4.7k
R706, 707	ERDS2TJ154	150k
R708	ERDS2TJ471	470
R710	ERDS2TJ271	270
R712, 713	ERDS2TJ103	10k
R714, 715	ERDS2TJ103	10k
R716	ERDS2TJ181	180
R717, 718	ERDS2TJ121	120
R901	ERDS2TJ102	1k
R902	ERDS2TJ182	1.8k
R903	ERDS2TJ103	10k
R904	ERDS2TJ471	470
R905, 906	ERDS2TJ103	10k
R907	ERDS2TJ105	1M
R908	ERDS2TJ471	470
R909	ERDS2TJ392	3.9k
R910	ERDS2TJ223	22k
R911	ERDS2TJ103	10k
R915	ERDS2TJ104	100k
R916	ERDS2TJ821	820
R917	ERDS2TJ104	100k
R918 except [EK, XL]	ERDS2TJ821	820
R919	ERDS2TJ391	390
R920, 921	ERDS2TJ103	10k
R925	ERG1ANJ390	39
R926 [EK, XL] only	ERDS2TJ271	270
R934 [EK, XL] only	ERDS2TJ471	470
R935 [EK, XL] only	ERDS2TJ224	220k
R936 [EK, XL] only	ERDS2TJ331	330
R937, 938 [EK, XL] only	ERDS2TJ472	4.7k
R939 [EK, XL]	ERG3ANP470	47
R939 [other]	ERG1ANP390	39

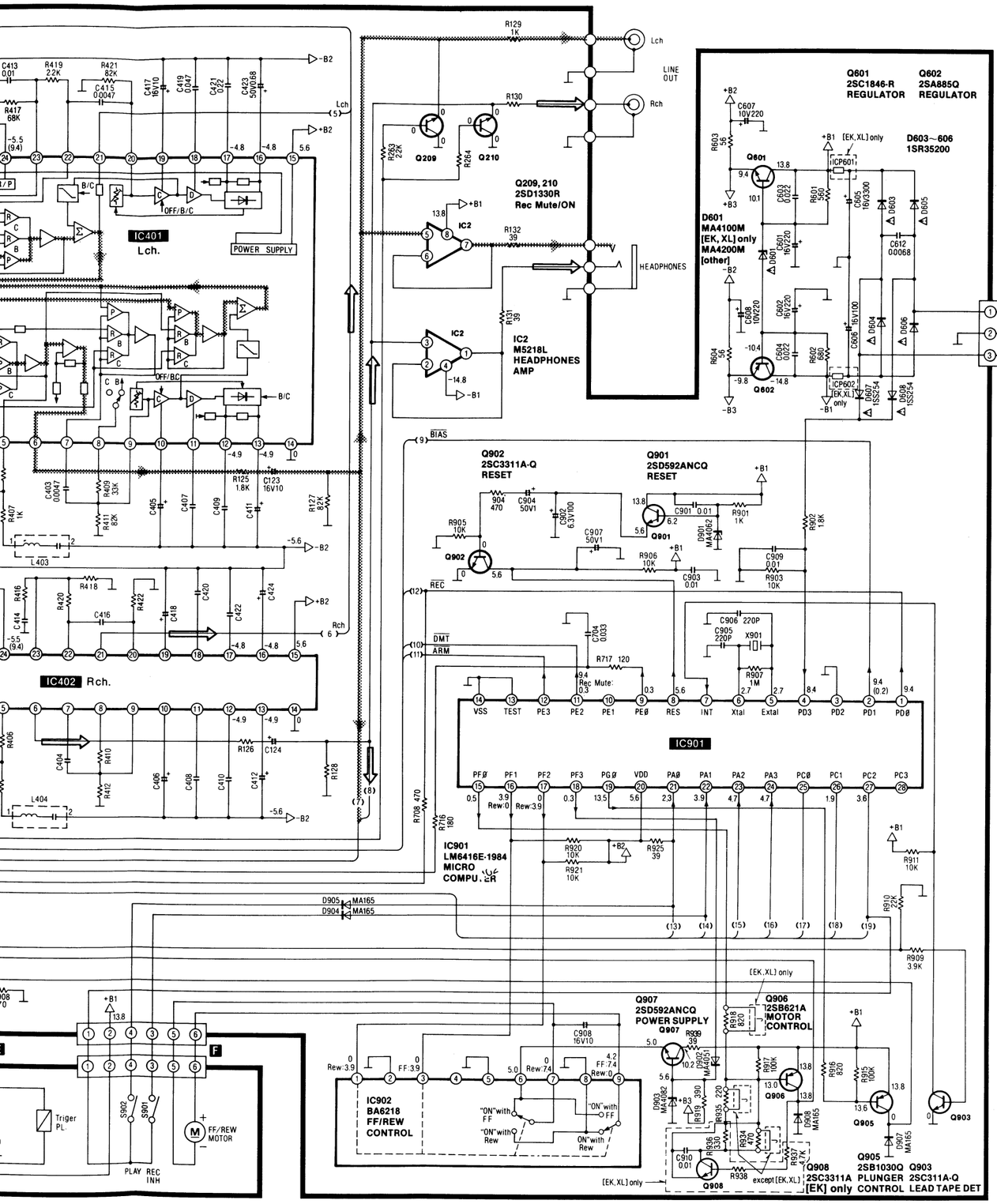
• CAPACITORS

Ref. No.	Part No.	Value
C1, 2	ECKD1H122KB	0.0012
C3, 4	ECKD1H681KB	680p
C5, 6	ECKD1H681KB	680p
C7, 8	ECEA1CU100	10
C9, 10	ECEA0JU221	220
C11, 12	ECQB1H562JZ	0.0056
C15, 16	ECEA1HU2R2	2.2
C17, 18	ECEA1HU010	1
C101, 102	ECEA1CU100	10
C103, 104	ECQB1H392JZ	0.0039
C105, 106	ECQB1H822JZ	0.0082
C109, 110	ECKD2H121KB	120p
C111, 112	ECKD1H561KB	560p
C115, 116	ECEA1HU010	1
C117, 118	ECQB1H472JZ	0.0047
C119, 120	ECEA1HU010	1
C121, 122	ECEA1CU100	10
C123, 124	ECEA1CU100	10
C201	ECEA1AU221	220
C202	ECEA1EU4R7	4.7
C203	ECEA1CU100	10
C204	ECFD1E104MD	0.1
C205	ECEA1AU220	22
C207	ECKD1H333ZF	0.033
C301	ECQP1183JZ	0.018
C302	ECQB1H332JZ	0.0032
C303, 304	ECQB1H222JZ	0.0022
C305	ECQB1H222JZ	0.0022
C306	ECEA1EU4R7	4.7
C401, 402	ECCD1H820K	82p
C403, 404	ECQB1H472JZ	0.0047
C405, 406	ECEA1CU100	10
C407, 408	ECQM1H473JZ	0.047
C409, 410	ECQM1H224JZ	0.22
C411, 412	ECEA50MR68R	0.68
C413, 414	ECQB1H103JZ	0.01
C415, 416	ECQB1H472JZ	0.0047
C417, 418	ECEA1CU100	10
C419, 420	ECQM1H473JZ	0.047
C421, 422	ECQM1H224JZ	0.22
C423, 424	ECEA50MR68R	0.68
C601, 602	ECEA1CU221	220
C603, 604	ECKD1H223ZF	0.022
C605	ECEA1CU332	3300
C606	ECEA1CU102	1000
C607, 608	ECEA1AU221	220
C612	ECKD2H682PEL	0.0068
C613, 614	ECKD1H103ZF	0.01
C701, 702	ECEA1HU2R2	2.2
C703	ECKD1H223ZF	0.022
C704	ECKD1H333ZF	0.033
C901	ECKD1H103ZF	0.01
C902	ECEA0JU101	100
C903	ECKD1H103ZF	0.01
C904	ECEA1HU010	1
C905, 906	ECCD1H221K	220p
C907	ECEA1HU010	1
C908	ECEA1CN100	10
C909	ECKD1H103ZF	0.01
C910 [EK, XL] only	ECKD1H103ZF	0.01

■ WIRING CONNECTION DIAGRAM




I MAIN CIRCUIT
IC1 AN7014K Rec/Play AMP
Q207, 208 2SA1253 Play/ON
Q1, 2 2SJ103GR Play/ON
Q101~104 2SC3311A Metal/ON
Q105, 106 2SC3311A Normal/ON
Q107, 108 2SD1330R Play/ON
Q201, 202 2SB1030Q Rec/ON
Q203 2SA1309Q Mute Control
Q205 2SA1309Q Mute Control
Q204 2SC3311A Except Mute/ON
Q301, 302 2SC3311A Bias OSC
IC401 TEA0665 Dolby NR
IC401 Lch.
IC402 TEA0665 Dolby NR
IC402 Rch.
IC701 AN6888 METER DRIVE
II MODE SW/LED METER CIRCUIT
III OPERATION SW CIRCUIT
V MECHANISM CIRCUIT
SWV0086 LED Meter Ass'y
Input Control
Erase Current Adj.
Bias Current adj
Erase Current Adj. Jumper Wire
P.B. Gain adj
Overall Gain adj
Photo Senser
CAP. MOTOR
Triger PL.
FF/REW MOTOR
PLAY REC INH



■ SCHEMATIC DIAGRAM

Notes:

- **S201-1, S201-2**: Tape select switch in "**normal**" position. (S201-1 ▬: CrO_2, S201-2 ▬: Metal, S201-1, S201-2 ▮: Normal)
- **S202-1, S202-2**: Dolby B.C NR switch in "**out**" position. (S202-1 ▬: B, S202-2 ▬: C, S202-1, S202-2 ▮: out)
- **S601-1, S601-2**: Power switch in "**on**" position.
- **S602** : Voltage select switch in "**240 V**" position. (240 V↔220 V↔127 V↔110 V) ([XA] area only.)
- **S701** : Rew switch in "**off**" position.
- **S702** : Stop switch in "**off**" position.
- **S703** : Play switch in "**off**" position.
- **S704** : FF switch in "**off**" position.
- **S705** : Rec switch in "**off**" position.
- **S706** : Pause switch in "**off**" position.
- **S707** : Auto rec mute switch in "**off**" position.
- **S708** : Timer switch in "**off**" position.
- **S901** : Rec inhibit switch in "**off**" position.
- **S902** : Mechanism play switch in "**off**" position.

- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. 1 K = 1,000(Ω), 1 M = 1,000 k(Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( )..... Voltage values at record mode.
  For measurement use EVM.
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

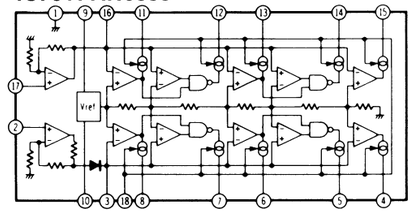
∗ Caution !

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

■ EQUIVALENT CIRCUIT

IC701: AN6888



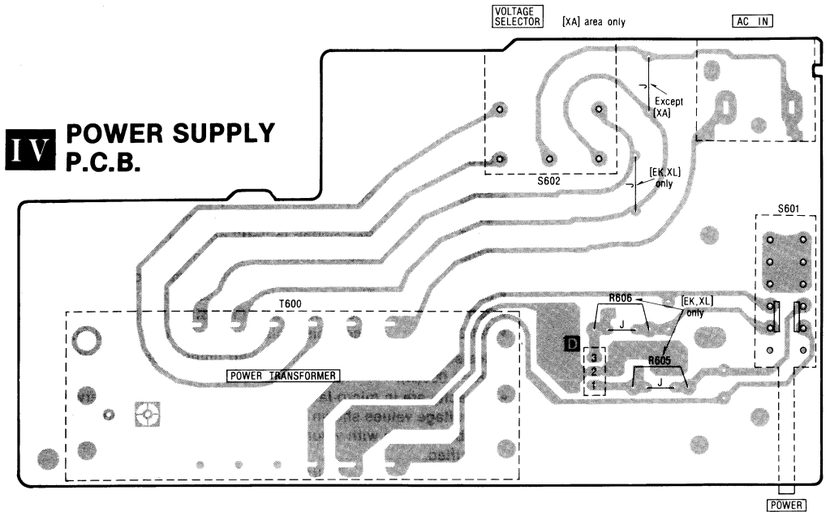
SPECIFICATIONS ∗ Input level control... MAX

Playback S/N ratio ∗ Test tape... QZZCFM	Greater than 45 dB
Overall distortion ∗ Test tape ... QZZCRA for Normal ... QZZCRX for CrO_2 ... QZZCRZ for Metal	Normal..... Less than 3.5% CrO_2, Metal... Less than 4%
Overall S/N ratio ∗ Test tape... QZZCRA	Greater than 43 dB (without NAB filter)

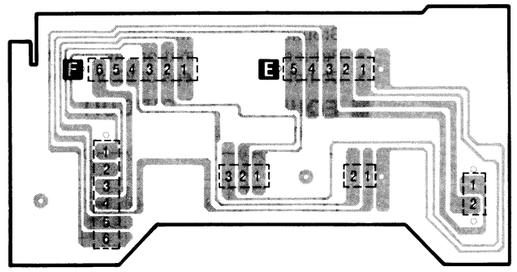
- (———) indicates B (bias).
- (▒▒▒) indicates the flow of the playback signal.
- (⟹) indicates the flow of the record signal.

■ PRINTED CIRCUIT BOARDS

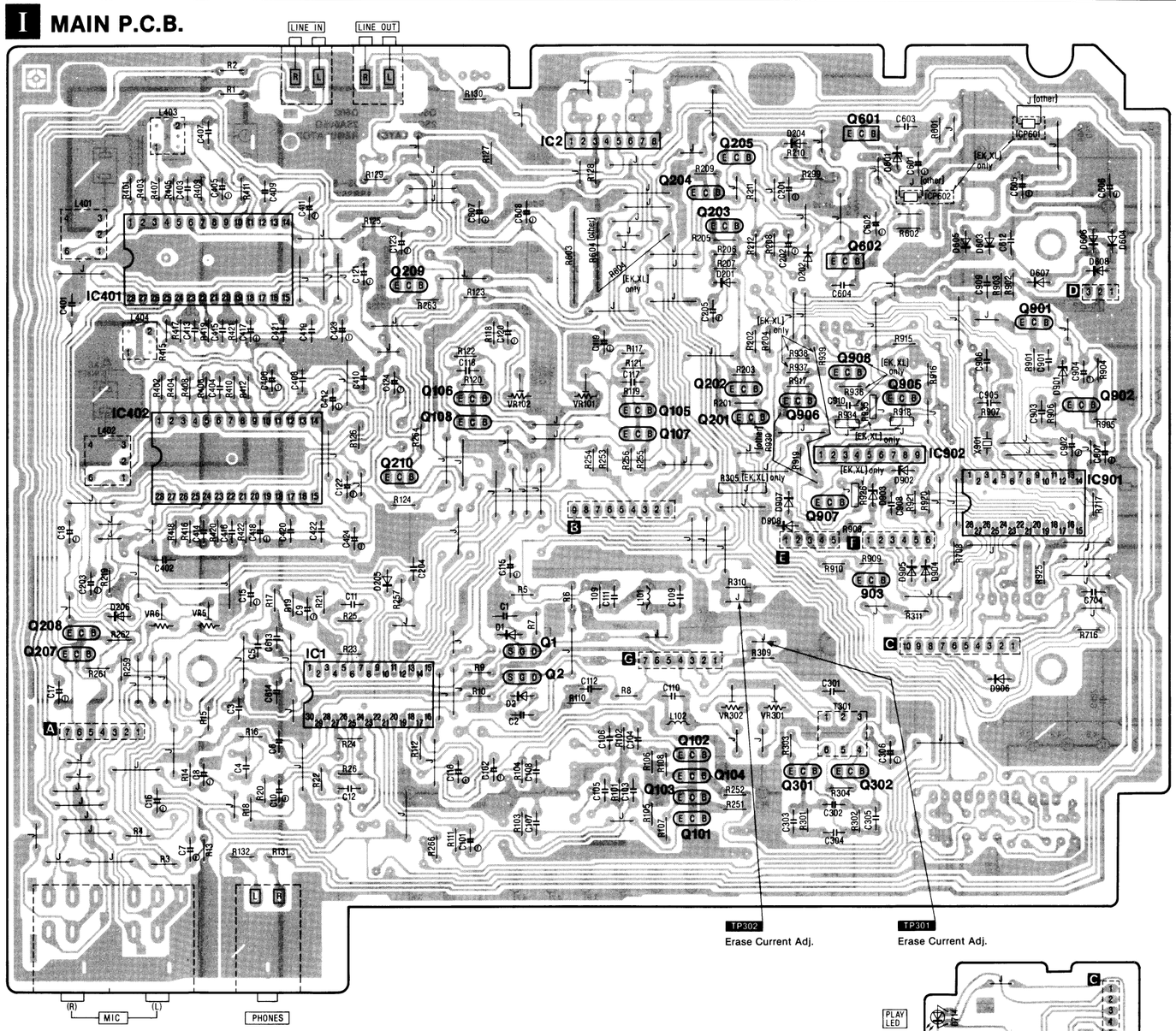
IV POWER SUPPLY P.C.B.



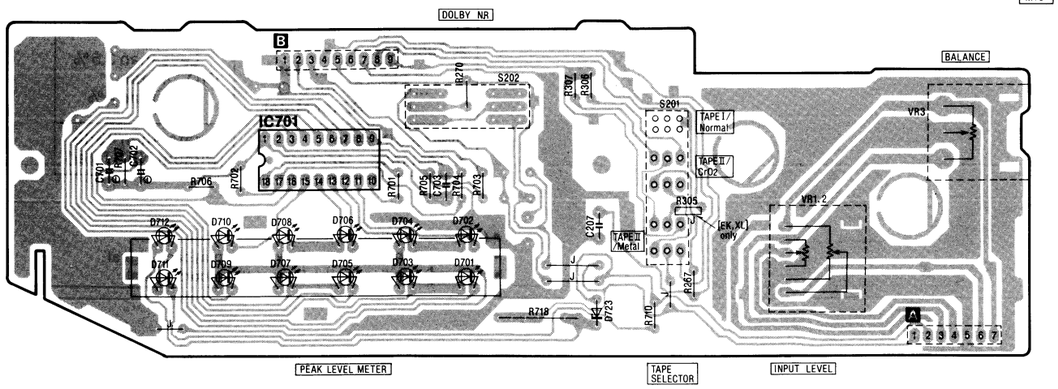
V MECHANISM P.C.B.



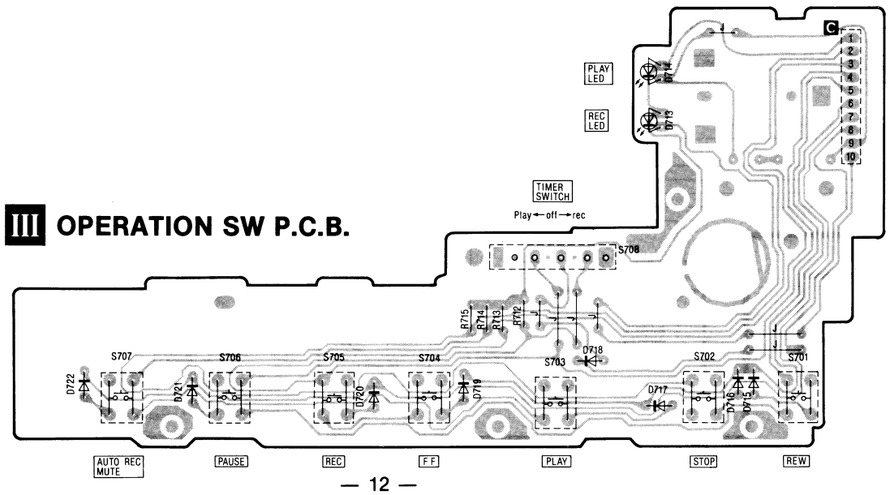
I MAIN P.C.B.



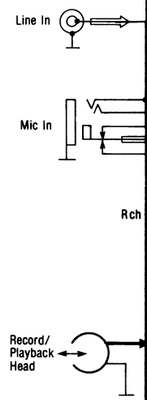
II MODE SW/LED METER P.C.B.



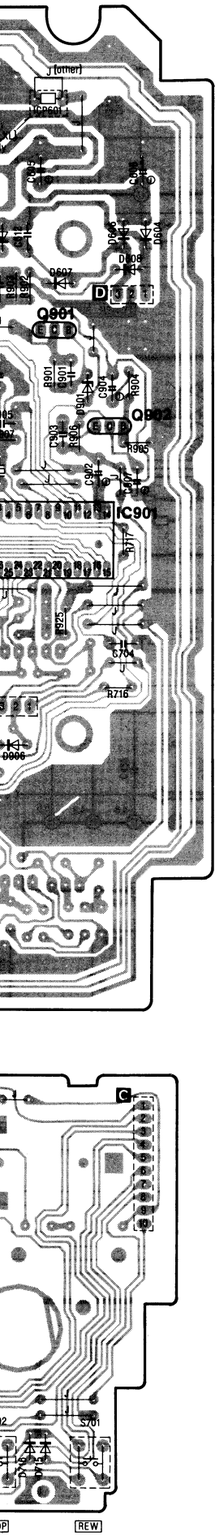
III OPERATION SW P.C.B.

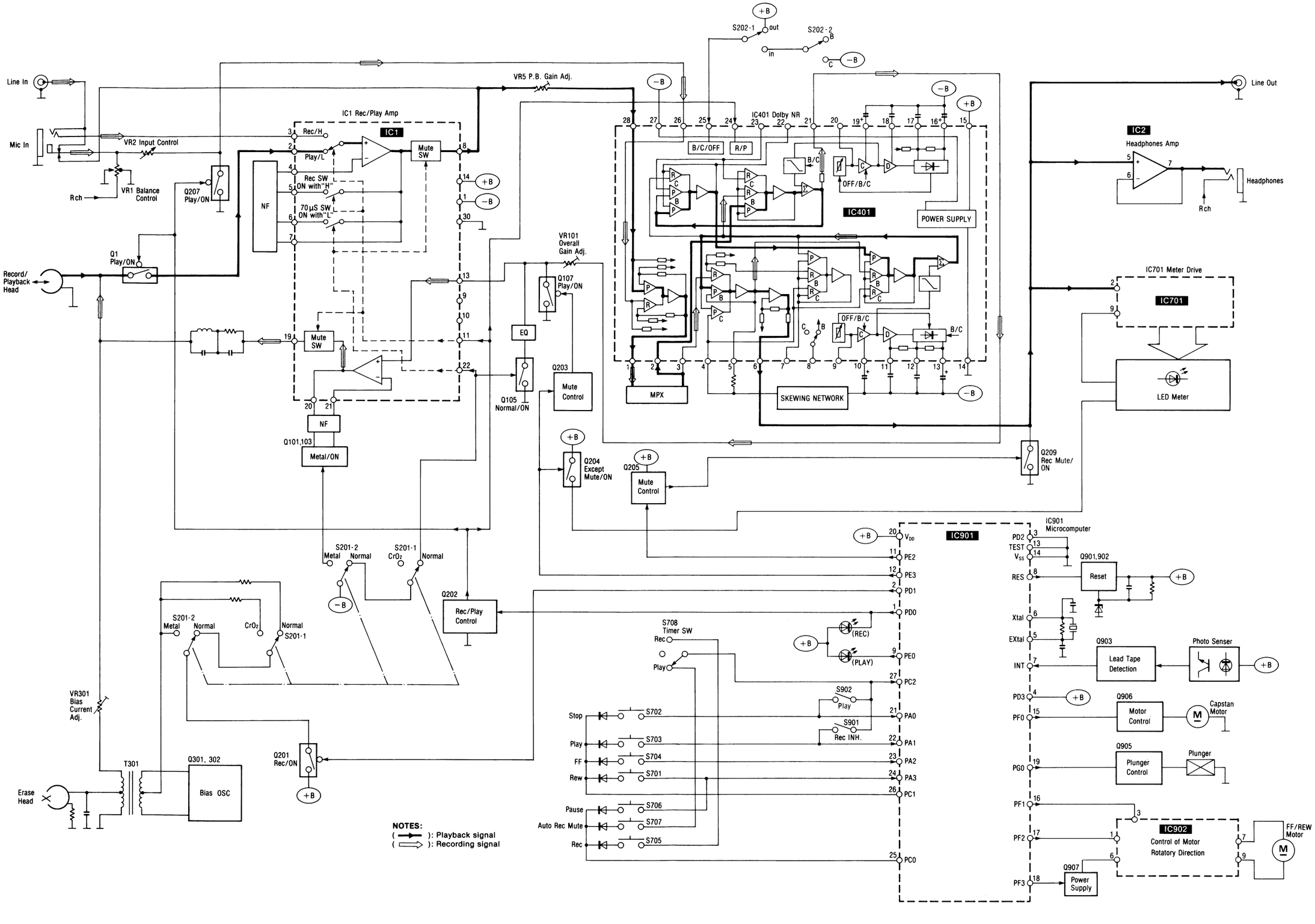


■ BLOC



■ BLOCK DIAGRAM





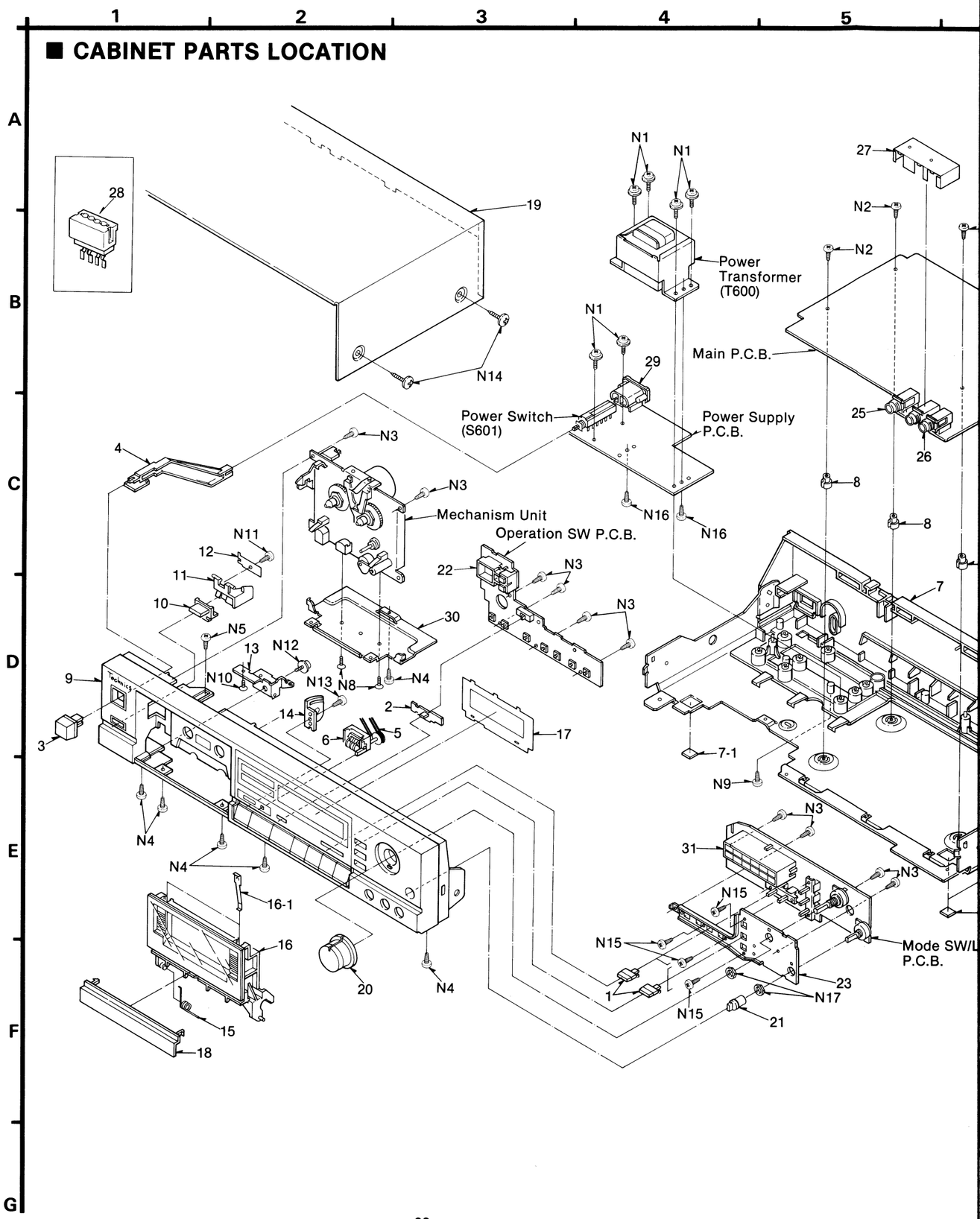
■ ELECTRICAL PARTS LIST

Notes:
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

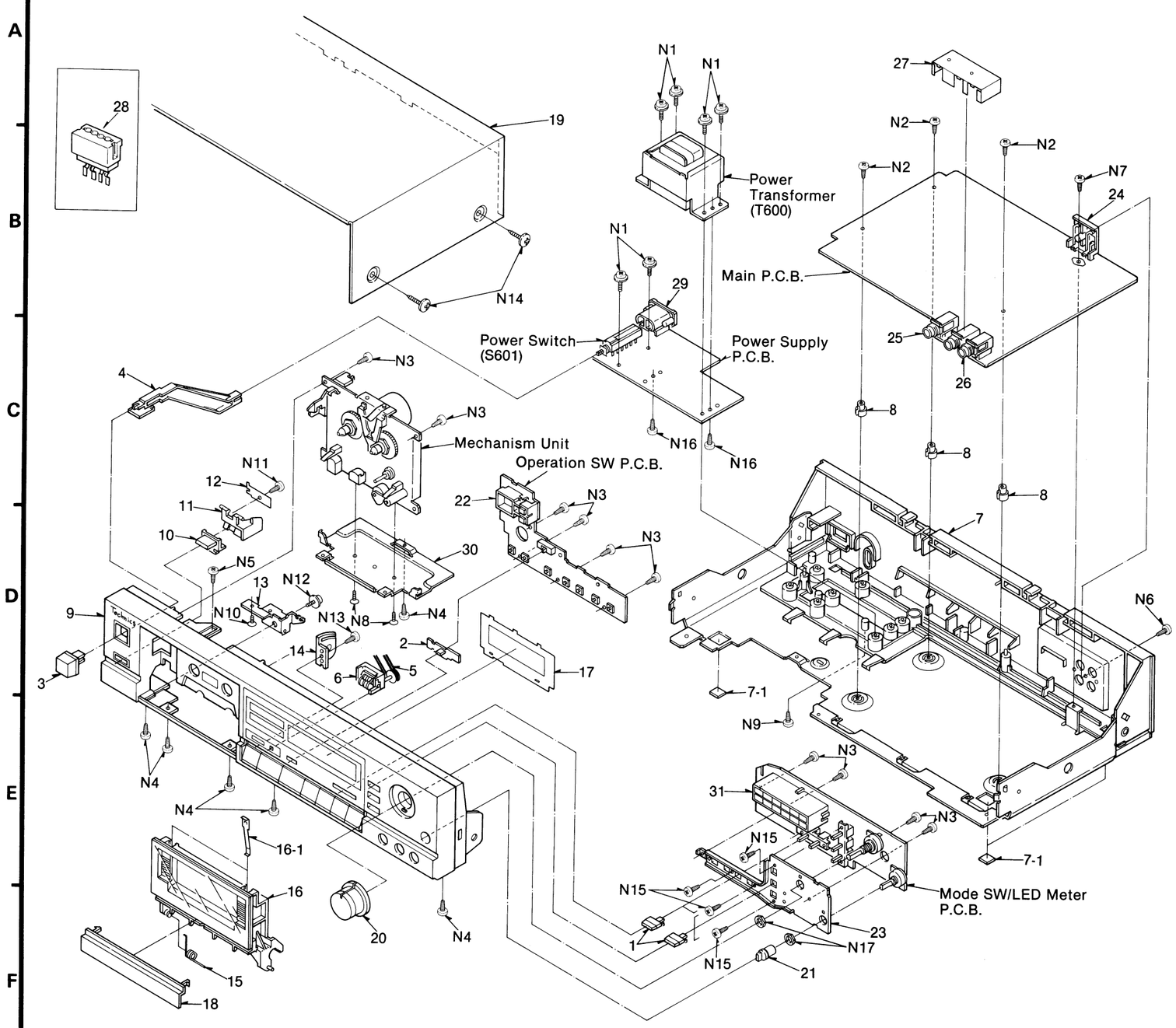
Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	AN7014K	Integrated Circuit
IC2	M5218L	Integrated Circuit
IC401, 402	TEA0665	Integrated Circuit
IC701	AN6888	Integrated Circuit
IC901	LM6416E – 1984	Integrated Circuit
IC902	BA6218	Integrated Circuit
TRANSISTORS		
Q1, 2	2SJ103GR	Transistor
Q101 ~ 106, 204, 301, 302, 902, 903	2SC3311A – Q	Transistor
Q107, 108, 209, 210	2SD1330R	Transistor
Q201, 202, 905	2SB1030Q	Transistor
Q203, 205	2SA1309Q	Transistor
Q207, 208	2SA1253 – S	Transistor
Q601	2SC1846 – R	Transistor
Q602	2SA885Q	Transistor
Q901, 907	2SD592ARTA	Transistor
Q906	2SB621A – B	Transistor
Q908 [EK, XL] only	2SC3311A – Q	Transistor
DIODES		
D1, 2, 201, 202, 204 ~ 206, 607, 608, 715 ~ 722, 904 ~ 908	MA165	Diode
D601 [EK, XL] ⚠	MA4100M	Diode
D601 [other] ⚠	MA4200M	Diode
D603, 604, 605, 606 ⚠	1SR35200	Rectifier
D701, 702, 709 ~ 712	SLR56YC	LED
D703 ~ 708	SLR56URC	LED
D713	LN846RP	LED
D714	LN346GP	LED
D723, 903	MA4082H	Diode
D901	MA4056 – M	Diode
D902	MA4051H	Diode

Ref. No.	Part No.	Description
VARIABLE RESISTORS		
VR1	EWC5SA000A54	Variable Resistor
VR2, 3	EWHFDAF15G15	Variable Resistor
VR5, 6	EVND4AA00B24	Variable Resistor
VR101, 102	EVND4AA00B54	Variable Resistor
VR301, 302	EVND4AA00B15	Variable Resistor
COILS		
L101, 102	QLQX0343KWA	Coil
L401, 402	QLM9Z10K	Coil
L403, 404	ELM7Q306A	Coil
CRYSTAL		
X901	SVFCSB400P – M	Ceramic Filter
IC PROTECTOR		
ICP601, 602 [EK, XL] only	SRUN25	IC Protector
ICP901 [EK, XL] only	SRUN5	IC Protector
TRANSFORMERS		
T301	SL09C19 – K	Oscillator Coil
T600 [E, EG, EH] ⚠	SLT5V01 – K	Power Transformer
T600 [EK, XL] ⚠	SLT5V02 – K	Power Transformer
T600 [XA] ⚠	SLT5V03 – K	Power Transformer
SWITCHES		
S201	SSH3700	Tape Selector
S202	SSH2121	Dolby NR
S601 ⚠	SSH1069	Power Source
S602 [XA] only ⚠	SSR187 – 1	Voltage Selector
S701 ~ 707	SSG13	Key Board
S708	QSS1305H	Switch Timer
S901	SMQA1040	Leaf Switch
S902	SMQA1023	Leaf Switch

■ CABINET PARTS LOCATION



■ CABINET PARTS LOCATION



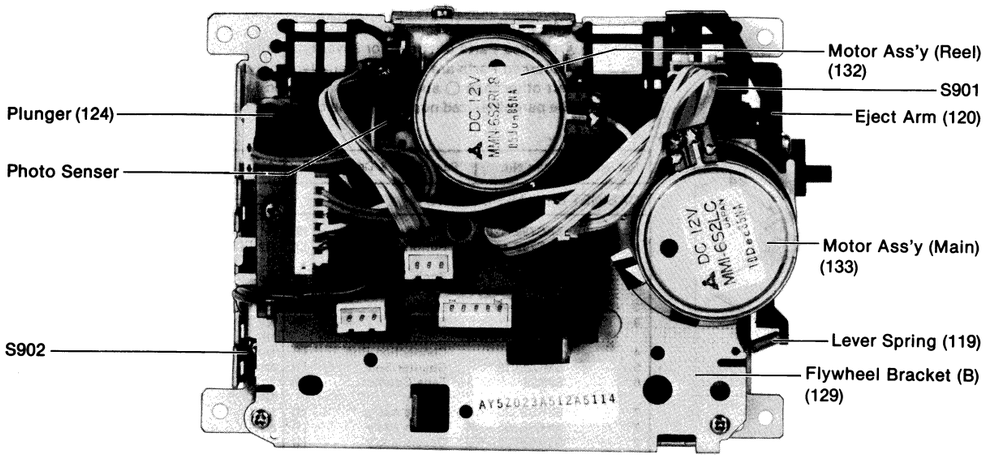
REPLACEMENT PARTS LIST

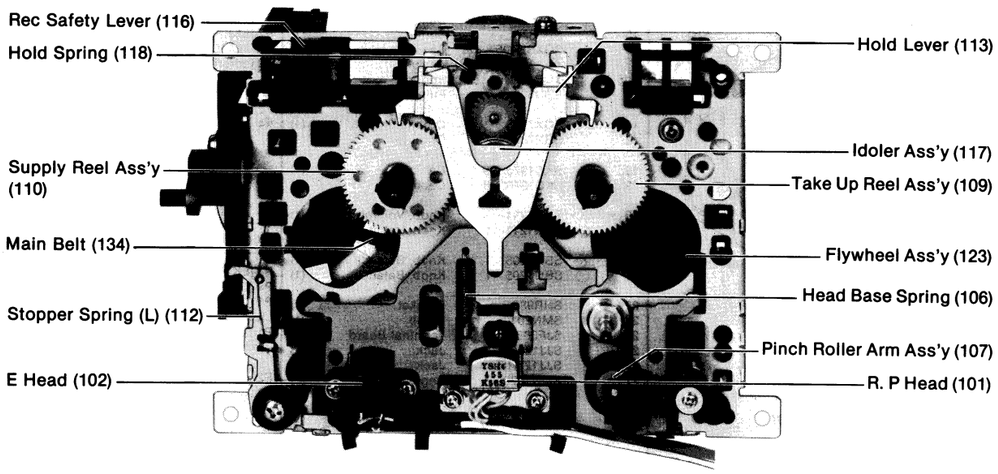
Notes:
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
- Ⓚ-marked Parts are used for silver type only. ○-marked Parts are used for black type only. Part other than ○ and Ⓚ-marked are used for both black and silver type.
- The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.		Part No.	Part Name & Description	
CABINET & CHASSIS PARTS				
1	Ⓚ	SBC799	Button	(5)
1	○	SBC799 – 1	Button	(3)
2		SBD133	Knob	(1)
3	Ⓚ	SBC666 – 3	Button	(1)
3	○	SBC666	Button	(1)
4		SUB258	Connection Rod	(1)
5		SMQ20016	Counter Belt	(1)
6		SJN22	Tape Counter	(1)
7		SYKSB305 – KE	Cassis Ass'y	(1)
7		SYKSB305 – KK	Cassis Ass'y	(1)
7		SYKSB305 – KG	Cassis Ass'y	(1)
7		SYKSB305 – KA	Cassis Ass'y	(1)
7		SYKSB305 – KL	Cassis Ass'y	(1)
[7-1		[SKL293	Foot	(4)
8		SHE185	Spacer	(3)
9	Ⓚ	SGYSB305 – KE	Front Panel Ass'y	(1)
9	○	SGYSB305 – SE	Front Panel Ass'y	(1)
10	Ⓚ	SBC736 – 1	Button	(1)
10	○	SBC736	Button	(1)
11		SUB236	Rod	(1)
12		SMN1971	Angle	(1)
13		SMN2011	Angle, Hoder	(1)
14		SKJSB405 – KE	Damper Gear Ass'y	(1)
15		SUS820	Spring	(1)
16		SGXSB405 – KE	Cassette Holder Ass'y	(1)
[16-1		[QBP2006A	Spring	(2)
17		SDU303	Filter	(1)
18	Ⓚ	SGX7843	Ornament	(1)
18	○	SGX7843 – 2	Ornament	(1)
19	Ⓚ	SKC1970K99	Cabinet	(1)
19	○	SKC1970S98	Cabinet	(1)
20	Ⓚ	SBN1211	Knob, Volume	(1)
20	○	SBN1211 – 1	Knob, Volume	(1)
21	Ⓚ	SBN1205	Knob, Balance	(1)
21	○	SBN1205 – 1	Knob, Balance	(1)
22		SHR9801	Bracket	(1)
23		SMN2010	Angle	(1)
24		SJF3057N	Terminal Board	(1)
25		SJJ126B	Jack	(1)
26		SJJ127HH	Jack	(1)
27		SMN1970 – 1	Angle	(1)
28		SJT30743 – V	Socket, J Ⓐ	(1)
28		SJT30943 – V	Socket, J Ⓑ	(1)
29	⚠	SJS9236	AC Inlet	(1)
30		SMN2012	Angle	(1)
31		SWV0086	LED Ass'y (D701 ~ 712)	(12)

Ref. No.		Part No.	Part Name & Description	
SCREWS, NUTS & WASHERS				
N1		XTW3 + 12QFR	Tapping, ⊕3 × 12	(6)
N2		XTB3 + 14J	Tapping, ⊕3 × 14	(3)
N3		XTV3 + 10JFR	Tapping, ⊕3 × 10	(10)
N4		XTB3 + 8J	Tapping, ⊕3 × 8	(6)
N5		XTB3 + 6FFR	Tapping, ⊕3 × 6	(1)
N6		XTB3 + 12JFZ	Tapping, ⊕3 × 12	(1)
N7		XTBS3 + 8JFZ1	Tapping, ⊕3 × 8	(1)
N8		XTS3 + 8FFR	Tapping, ⊕3 × 8	(2)
N9		XTB3 + 10GFZ	Tapping, ⊕3 × 10	(1)
N10		XTS3 + 10J	Tapping, ⊕3 × 10	(1)
N11		XTB26 + 8J	Tapping, ⊕26 × 8	(1)
N12		XTW3 + 10T	Tapping, ⊕3 × 10	(1)
N13		XTB3 + 12J	Tapping, ⊕3 × 12	(1)
N14	Ⓚ	SNE2125 – 1	Cabinet	(4)
N14	○	SNE2125	Cabinet	(4)
N15		XTN3 + 6FFR	Tapping, ⊕3 × 6	(4)
N16		XTV3 + 6JFZ	Tapping, ⊕3 × 6	(2)
N17		XNS8	Nut	(2)
ACCESSORIES				
A1 [EK]		SQF12725	Instruction Book	(1)
A1 [EGA]		SQF12726	Instruction Book	(1)
A1 [other]		SQF12724	Instruction Book	(1)
A2 [EK]	⚠	SFDAC05G02	Power Cord	(1)
A2 [XL]	⚠	SJA157	Power Cord	(1)
A2 [other]	⚠	SJA171	Power Cord	(1)
A3 [XA] only		SJP5213 – 1	Plug	(1)
A4		SJP2264	Cord	(1)
PACKINGS				
P1 [EK]	Ⓚ	SPG5591	Carton Box	(1)
P1 [EK]	○	SPG5592	Carton Box	(1)
P1 [other]	Ⓚ	SPG5589	Carton Box	(1)
P1 [other]	○	SPG5590	Carton Box	(1)
P2		SPS4708	Pad, Left Side	(1)
P3		SPS4709	Pad, Right Side	(1)
P4		SPS4756	Spacer	(1)
P5		XZB50X65A02	Polyethylene Sheet	(1)

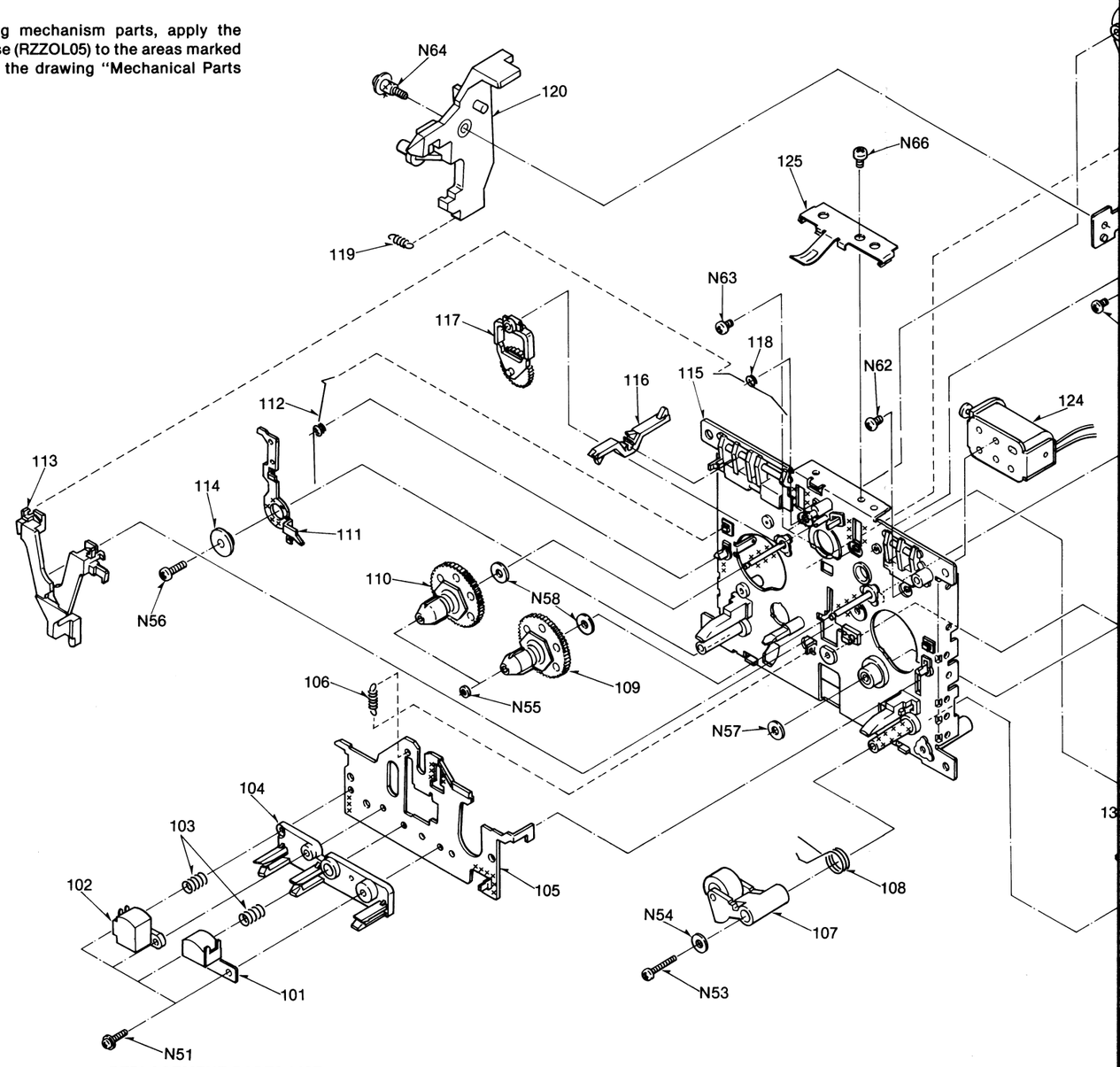
■ MECHANICAL PARTS LOCATION





Notes:

- When changing mechanism parts, apply the specified grease (RZZOL05) to the areas marked "xx" shown in the drawing "Mechanical Parts Location".



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	
MECHANISM PARTS			
101	SJH99	R.P Head	(1)
102	SJH100	E Head	(1)
103	SMQA1001	Head Spring	(2)
104	SMQA1002	Head Spacer	(1)
105	SMQA1003	Head Base	(1)
106	SMQA1004	Head Base Spring	(1)
107	SMQA1005	Pinch Roller Arm Ass'y	(1)
108	SMQA1006	Pinch Roller Spring (R)	(1)
109	SMQA1026	Take Up Reel Ass'y	(1)
110	SMQA1013	Supply Reel Ass'y	(1)
111	SMQA1011	Eject Stopper Arm	(1)
112	SMQA1012	Stopper Spring	(1)
113	SMQA1015	Hold Lever	(1)
114	SMQA1009	Spacer	(1)
115	SMQA1008	Chassis Ass'y	(1)
116	SMQA1025	Rec Safety Lever	(1)
117	SMQA1016	Idoler Ass'y	(1)
118	SMQA1024	Hold Spring	(1)
119	SMQA1019	Lever Spring	(1)
120	SMQA1018	Eject Arm	(1)
121	SMQA1022	Spacer	(1)
122	SMQA1033	Cam Gear (B)	(1)
123	SMQA1032	Flywheel Ass'y	(1)
124	SMQA1030	Plunger	(1)
125	SMQA1027	Pack Hold Spring	(1)
126	SMQA1021	Spacer	(1)
127	SMQA1020	Angle	(1)
128	SMQA1034	Spacer	(1)
129	SMQA1035	Flywheel Bracket (B)	(1)
130	SMQA1029	Cap	(1)
131	SMQA1028	Play Arm Ass'y	(1)
132	SMQA1036	Motor Ass'y (Reel)	(1)
133	SMQA1037	Motor Ass'y (Main)	(1)
134	SMQA1038	Main Belt	(1)
135	SMQA1041	Photo Senser	(1)

5 6 7 8 9 10 11 12 13 14

otor Ass'y (Reel)
32)
S901
–Eject Arm (120)

otor Ass'y (Main)
3)

ever Spring (119)
heel Bracket (B)

–Hold Lever (113)

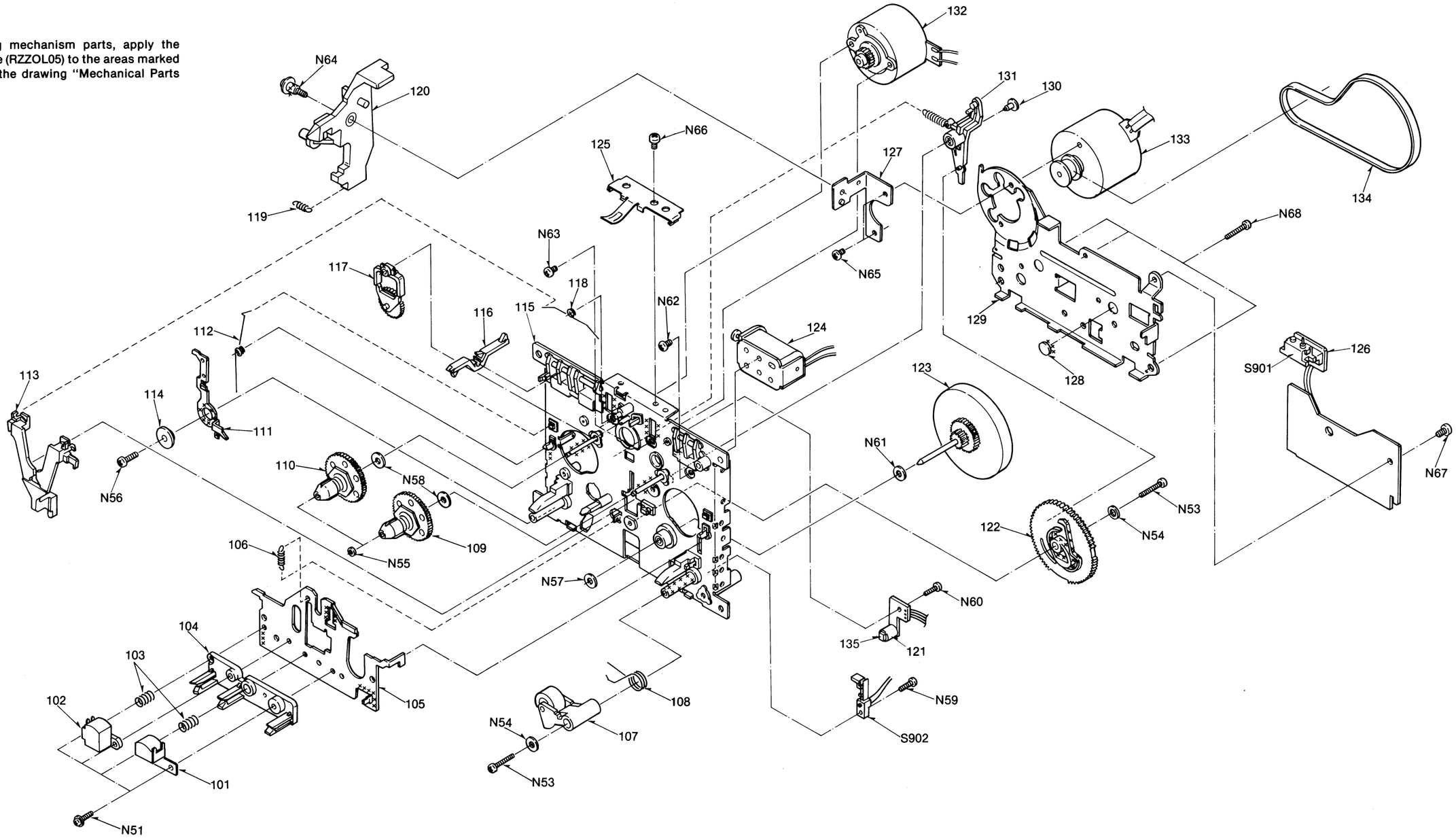
– Idoler Ass'y (117)
Up Reel Ass'y (109)

ywheel Ass'y (123)
l Base Spring (106)

ler Arm Ass'y (107)
—R. P Head (101)

Notes:

- When changing mechanism parts, apply the specified grease (RZZOL05) to the areas marked "xx" shown in the drawing "Mechanical Parts Location".



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	
MECHANISM PARTS			
101	SJH99	R.P Head	(1)
102	SJH100	E Head	(1)
103	SMQA1001	Head Spring	(2)
104	SMQA1002	Head Spacer	(1)
105	SMQA1003	Head Base	(1)
106	SMQA1004	Head Base Spring	(1)
107	SMQA1005	Pinch Roller Arm Ass'y	(1)
108	SMQA1006	Pinch Roller Spring (R)	(1)
109	SMQA1026	Take Up Reel Ass'y	(1)
110	SMQA1013	Supply Reel Ass'y	(1)
111	SMQA1011	Eject Stopper Arm	(1)
112	SMQA1012	Stopper Spring	(1)
113	SMQA1015	Hold Lever	(1)
114	SMQA1009	Spacer	(1)
115	SMQA1008	Chassis Ass'y	(1)
116	SMQA1025	Rec Safety Lever	(1)
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118	SMQA1024	Hold Spring	(1)
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131	SMQA1028	Play Arm Ass'y	(1)
132	SMQA1036	Motor Ass'y (Reel)	(1)
133	SMQA1037	Motor Ass'y (Main)	(1)
134	SMQA1038	Main Belt	(1)
135	SMQA1041	Photo Senser	(1)
SCREWS and WASHERS			
N51	XSN2+8	Screw ⊕2×8	(4)
N53	XTN2+13C	Screw ⊕2×13	(2)
N54	XWE2	Washer 2φ	(2)
N55	SMQA1010	Polyslider Washer	(2)
N56	XTN3+8C	Screw ⊕3×8	(1)
N57	SMQA1007	Nylon Washer	(1)
N58	SMQA1014	Polyslider Washer	(2)
N59	XTN2+7C	Screw ⊕2×7	(1)
N60	XTN2+6C	Screw ⊕2×6	(1)
N61	SMQA1031	Polyslider Washer	(1)
N62	XYN26+C3	Screw ⊕2.6×3	(1)
N63	XYN26+C6	Screw ⊕2.6×6	(2)
N64	SMQA1017	Coller Screw	(1)
N65	XYN26+C45	Screw ⊕2.6×4.5	(2)
N66	XTN3+4F	Screw ⊕3×4	(1)
N67	XTN3+5F	Screw ⊕3×5	(1)
N68	XTN26+8C	Screw ⊕2.6×8	(3)

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